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A study of offshore printing between the United States and China

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A Study of Offshore Printing Between the United States and China

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Abstract

In 2004, Andy Paparozzi of the National Association of Printing Leadership (NAPL) reported that it was a good year for the U.S. printing industry, because it was the first year since 2001 in which the industry showed growth. However, this good news cannot appease the complaints from U.S. printers who are concerned about losing their jobs to overseas printers. According to a survey conducted by the Printing Industries of America/Graphic Arts Technical Foundation (PIA/GATF), 40% of printers think that their customers are seeking global sourcing for their printing needs. Offshoring is the new reality of globalization. Journalists constantly mention the benefits and dangers in offshoring. No one is really sure if offshoring is beneficial or not, or if it is just overwhelming the printing industry.

For the following thesis, the researcher conducted two surveys. One targeted U.S. print buyers (buyers, brokers, and book publishers); the other survey targeted Chinese printers. This research discusses the following issues:

- How do Chinese printers view U.S. offshore print buying trends?
- How are Chinese printers planning to upgrade and to improve their capabilities to acquire and to handle offshore print jobs?
- Is there a trend (an increase or a decrease) in offshore print buying from China?
- How do U.S. print buyers evaluate the need to send print jobs to China?
- What are the obstacles that prevent U.S. print buyers from buying print from China?

The research findings will benefit the U.S. printers by clarifying our understanding the print buyer's behavior and reasons for purchasing their print offshore. With more accurate knowledge in this field, U.S. printers will be in a better position to know what it will take to become more competitive.

Chapter 1

Introduction

Background and Significance

The United States printing industry went into a recession in 2001. The year 2004 was the first year since 2001 that the printing industry recorded positive growth. On one hand, printers are excited about this positive growth, but on the other hand, printers are concerned with offshore printing.

Offshore printing is not new; it has been practiced for decades (Cataloq, 2004). In the past 15 years, the offshore trade has boomed, with a hundred-fold increase in the number of U.S. and European companies print brokers, and there is a corresponding number of publishers interested in sending work overseas to places such as China, Hong Kong, India, and Eastern European countries (Print Management, 2004).

The U.S. printing industry is experiencing increased competition from overseas printing firms (Webb, 2005). China has increased its U.S. print exports by 243.9% since 1996, while India is the up-and-coming competitor in offshore printing because their workforce is well-educated and often fluent in English (Frauenheim, 2005).

Back in 1995, the U.S. had a 72% export surplus in books and other printed matter (Webb, 2004). In 2003, the U.S. book and printed matter export surplus dropped by 56% to 16%. Employment rates of printing companies in the U.S. also dropped and sought to be the “right size” for laborsaving automation (Nason, 2005). In 2003, the U.S. imported $1.3 billion worth of printed products from Canada and $745 million from China (Michelson, 2005), and the surplus in books and printed material was barely more than 16% (Webb, 2004). In the first eight months of 2004, the total surplus in printed material traded within the U.S. declined by 82%, compared to 2003. Imports and exports comprised roughly 3% of total U.S. print shipments. Domestic printers are increasing their competition by offshoring (Naselli, 2005).

In October, 2004, the PIA/GATF Print Market Survey revealed that nearly 40% of printers thought that their customers are seeking global sourcing for their printing needs, one third of the printers said that they lost a print project to a foreign competitor in the first nine months of 2004, and half of those respondents indicated that the foreign competition was a Chinese printer (Michelson, 2005). Another PIA/GATF article in March 2004, stated:

> Offshore 4-color printing/digital technology makes it easier for a publisher to print overseas where it’s deemed to be more cost effective. Coffee table/art books, 4-color/high-value juvenile books, and some religious and professional books are particularly vulnerable to this trend, primarily from China (Bland, 2004).

Statement of Problem

There is not much concrete data about the status of offshore printing to China. The PIA/GATF survey mentioned that half of those respondents indicated that they had lost one job to a Chinese printer. However, there is no research that focuses on China's offshore printing and how much it affects the U.S. printing industry (Michelson, 2005). Some U.S. offshore printing consultants have mentioned that offshoring is not guaranteed to save costs. The lack of actual information confuses people when they are deciding whether to print in the U.S. or to send print jobs overseas to China (Weinstein, 2005).

There is not yet any proof whether or not offshoring to China is a better alternative to buying print services domestically. There are many issues and disputes over the actual cost savings obtained by offshoring. The greatest concern for the U.S. printing industry is whether China's printing industry will grow strong enough to acquire a large portion of the U.S. market. There is no strong evidence that suggests that offshoring to China will have a damaging impact on the U.S. printing industry.

Reasons for Interest

When China entered the World Trade Organization (WTO) in 2001, everything started to change. China is now seen as the fastest growing country in the world. The Free Trade Agreement is an important factor allowing the Chinese printing industry to grow, and it is growing by double digits annually.

Researchers who are interested in the printing industry, especially print buying consultants, should have knowledge about China's offshore printing market, and should learn what factors are making U.S. print buyers feel more comfortable when buying in China. This research objective is to benefit the U.S. printers by understanding the print buyer's behavior and reasons for purchasing their print offshore. With accurate knowledge in this field, U.S. printers can improve their strength and become more competitive.

Chapter 2

Literature Review

Introduction

In the 21st Century, a growing trend has begun in the United States' economy: the accelerating loss of jobs to overseas workers (Hira, 2005). An article from CNN pointed out a survey from Hewitt Associates, who surveyed 500 personnel executives. It showed that 92% of the companies that relocated offshore saved money, especially on labor costs. About 45% of the companies surveyed have overseas operations, and 71% of the remaining firms plan to move some jobs abroad by the year 2005. The percentage of jobs being moved overseas is expected to double in the next three years. Finance companies favor India, China, Mexico, Canada, and Ireland (Maranjian, 2004).

Offshore printing is not new; it has been practiced for decades (Cataloq, 2004). In the past 15 years, the offshore trade has boomed, with a hundred-fold increase in the number of U.S. and European companies print brokers and a corresponding number of publishers interested in sending work overseas to places such as China, Hong Kong, India, and Eastern European countries (Print Management, 2004).

The globalization of Asia began with the expansion of trade to overseas markets. Today's globalization in Asia and China is based on the scale of turnover and profit that is produced by the enterprise and the movement of capital. The big wave of the innovative information technology, assisted by the shift of capital, has expanded business across borders and is working as a driving force in the globalization of the market. The printing industry, being part of the communications industry, has already joined the main axis that is leading this information-oriented society (JAGAT, 2004).

After 15 years of negotiations, China became a member of the World Trade Organization (WTO) in November 2001. Since the accession, China has become an active member, and its share of world trade has increased sharply (Bhattasali, Li, and Martin, 2004). The WTO agreement required significant changes in China's policies and practices. Substantial reductions in protectionism, the strengthening of protection of intellectual property, and the adopting of a framework to facilitate trade and to reduce poverty are the key aspects. Environmental provisions on antidumping and safeguards are getting stronger all over China, and the potential costs are high in the cases where noncompetitive practices are used.

World trade has dramatically changed since 2001. China is growing at a fast and steady pace, international investment is at its peak, and freedom to create certain types of enterprises is a reality today. Overall, the impact of China's accession has been positive both for China and for the world. Obviously, some sectors of the economy in different parts of the world have been affected, but China has proven to be a productive and effective country for manufacturing many types of products (Bhattasali, Li and Martin, 2004).

Current Status of the China Printing Industry

China has become well known as the "workshop of the world" with the advantage of its cheap labor (Mcgregor, 2004). In the year 2000, China's printing industry recorded an 8.1% growth. China also established the 9th Five-Year Plan for the Print & Publishing industry, and the output of commercial printing is expected to enjoy an annual growth rate of at least 10% (Xpressholding, 2000). After entering the WTO, China continues to maintain a fast-growing rate in its economy and social development. Due to the WTO agreement with the United States, China will decrease the current industrial tariffs from an overall average 17%, down to 9.4% (MAC, 2001). The import tariffs of paper products to China average 23.35% (Yang, 2001), the WTO entry will reduce that to 5 - 7%, and recovered paper (2%) will also be reduced or eliminated (MAC, 2001).

In 2003, China's GDP exceeded RMB11.7 trillion (approximately U.S. $1.4 trillion) and experienced an increase of 9.1%, compared with the year 2002. The volume of foreign trading exceeded U.S. $851 billion, and foreign direct investment reached U.S. $53.5 billion, an increase of 37% and 1.4%, respectively. China's national foreign exchange also reached U.S. $403 billion, an increase of 40% over the past year (JAGAT, 2004).

In 2003, about 190,000 titles of books, 9,165 magazine titles (JAGAT, 2004), and 2,119 newspapers were published in China for its domestic market (China Knowledge Press, 2005). There are about 4.5 trillion valued products for the domestic market and U.S. $430 billion valued products for the overseas market that were packaged and printed in China. Together with other printing demands, it provides a huge market for the China printing and packaging industries (JAGAT, 2004).

In 2004, the Chinese printing industry employed 3 million people. There are approximately 92,400 printing houses; 9,950 were engaged in publication printing, 31,300 in package printing, and 51,150 in other printing sectors. Among these printing houses, 7,000 are state-owned, 24,000 are collective enterprises, 2,200 are foreign-invested and joint ventures, 17,000 are joint-stock enterprises, 36,000 are privately owned, and 6,200 are in other categories. The total production value of the printing industry was about RMB220 billion (U.S. $27.5 billion), which represents 2% of China's total GDP, and RMB30 billion (U.S. $3.75 billion) are exported to other countries (JAGAT, 2004). In comparison, the United States boasts over 26,000 truly commercial printing plants with about 500,000 workers. Only 5% of Chinese printing firms have fixed assets of U.S. $2 million or more; therefore, the number of printers large enough to engage in export trade in China is very limited (SFMINC, 2005).

China’s printing industry maintains a dynamic momentum in development with its fast-growing economy and culture. In China, some provinces have developed into large printing industrial zones. Long-term development plans and favorable policies have been adopted (JAGAT, 2004).

The regional printing industrial zone along the Zhujiang River Delta and Yangtze River Delta is seeing rapid growth. In these two areas, printing enterprises are relatively large in scale, equipped with advanced technologies and equipment, and the total sales income accounts for 3/4 of the whole printing industry in China (JAGAT, 2004).

Ever since China entered the WTO, the investment of overseas capital into the Chinese printing industry has been greatly accelerated. After China's successful accession to the WTO, the government approved 170 printing enterprises with foreign investments in 2002 and 2003. Those investments exceeded U.S. $1 billion. In 2004, the country had 2,200 foreign invested printing enterprises; most of them are located at the coastal line areas, about 1,600 in Guangdong Province (in which 90% are investments from Hong Kong), and 200 in Shanghai. For example, American company R. R. Donnelley invested in and built printing operations in Shenzhen and Shanghai, which are still operating. Toppan Printing Co. Ltd., Japan is planning to invest U.S. $90 million to set up a large-scale packaging, printing, and ink manufacturing enterprises in Shanghai with its Chinese partners. NIPPO Printing Co., Ltd., and Nishiguchi Printing Co., Ltd., Japan successfully started operating in Beijing and Shanghai a few years ago. Given the trend of economic globalization, the huge and fast-growing printing market renders China a new territory (JAGAT, 2004).

Characteristics of China's Printing Industry

China's printing industry is divided into two major lines. The first line involves applications in packaging, which accounts for 70% of the printing industry. The other 30% is for printing newspapers, books, and magazines (Sheinet, 1998). Offset printing accounts for 90% of the total market; in the package printing sector, off-set, gravure, flexography, and screen printing account for over 40%, 25%, 8%, and 55%, respectively.

The Chinese government is pushing hard on establishing laws, policies, and regulations on the printing industry; therefore, the print market environment is improving. In 2001, The Press and Publication Administration China (PPA) implemented a number of policies and regulations, including *Ownership of Printing Business, Setting Up Foreign Invested Printing Enterprise, Regulations on Accepting and Producing Printed Products,* and *Guidelines on Annual Inspection and Ratification of Printing Enterprises.* These policies and regulations have constituted a new legal framework for the printing industry that is favorable for development and investment.

In 2002 and 2003, the central and local government departments in China conducted a powerful nationwide campaign of rectifying the printing market and cracking down illegal printing activities, such as illegal publications, and fake and inferior labels, marks, packages, certificates, etc. The government is also emphasizing the role of industrial associations and organizations to promote self-discipline and faithful service in the industry. As the market becomes more regulated and ordered, lawful operations are ensured and protected. All these efforts have worked to drive the industry in a healthy and ordered direction (JAGAT, 2004).

The Current U.S. Printing Industry

Competition among U.S. printers is fiercer than ever, despite consolidations and closures. Competition hits printers from every direction, including the Internet, television, multi-media promotional kits, and overseas bargain pricing (Whitcher, 2004). Today, the U.S. printing industry is experiencing increased competition from overseas printing firms (Webb, 2005). China has increased its U.S. print exports by 243.9% since 1996, while India is the up-and-coming competitor in offshore printing, because their workforce is well-educated and often fluent in English (Frauenheim, 2005).

In 1995, the U.S. had a 72% import-export surplus in books and printed matter (Webb, 2004). In 2003, the U.S. imported $1.3 billion worth of print from Canada and $745 million from China (Michelson, 2005); the surplus in books and print was barely more than 16% (Webb, 2004). In the first eight months of 2004, the total surplus in printed materials trading within the U.S. declined by 82%, compared to 2003. Imports and exports comprised roughly 3% of total U.S. print shipments. Domestic printers are increasing their competition with offshoring (Naselli, 2005). Figure 1 shows the trade surplus and imports from year 1995 to 2003 in U.S.; trade surplus went down more than 60%, and the prints imports increased 54%.

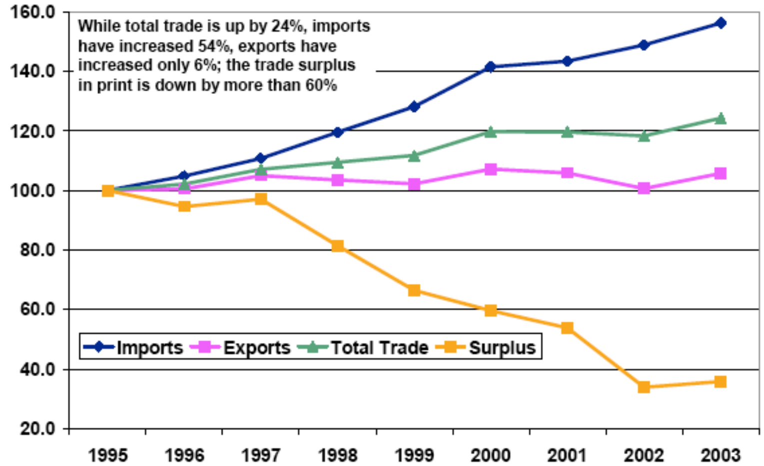

Figure 1. The U.S. trade surplus in printing materials.

(Source: *http://www.prweb.com/prfiles/2004/09/08/156536/ Offshore_Printing_Presentation_www-sfminc-com.pdf)*

An October, 2004, PIA/GATF Print Market Survey revealed that nearly 40% of printers think that their customers are seeking global sourcing for their printing needs, 29% said that they lost a print project to a foreign competitor in the first nine months of 2004, and 49% of surveyed printers said that the foreign competition was based in China (Michelson, 2005).

Also, according to PIA/GATF, in an article in March 9, 2004, it was stated that:

> Offshore 4-color printing/digital technology makes it easier for a publisher to print overseas where it's deemed to be more cost effective. Coffee table/art books, 4-color/high-value juvenile books, and some religious and professional books are particularly vulnerable to this trend, primarily from China (Bland, 2004).

Reasons for Purchasing Print Offshore

A majority of the companies are printing offshore because of a bigger cost saving. Offshoring enables companies to focus on their core activities, to increase flexibility by achieving their bottom-line budget, and to assess their lean production by reducing operating costs, thus increasing profit (Buss, 2005). In North America, if a job costs U.S. $4,950, and in Germany the cost is about U.S. $6,400, the cost in China would be only about U.S. $2,245 (Mallardi, 2004). Figure 2 shows the cost of different print production processes among different countries. In comparison, Asian countries' printing costs are much lower than printing costs in the U.S. or in Europe. Those savings come mostly from lower labor costs and from saving by using domestic paper instead of imported paper.

Comparative Component Costs of a Typical Sheetfed Printing Job in Different Places

Place/ Component	Germany	USA/ Canada	Mexico/ Central America	South America	Southeast Asia	China (PRC)
Paper	26	22	20	18	18	16
Prepress	20	17	16	22	9	7
Press	44	28	22	32	16	8
Postpress	13	10	6	9	7	4
Pack-out	4	2	2	2	4	3
Selling	5	8	5	9	4	2
GenAdmin	7	10	6	9	7	4
Totals	119	97	77	101	65	44

Figure 2. Comparative component costs (in $USD) of a typical sheetfed printing job in different places.

(Source: *http://www.piworld.com/pi_premium/282948667378949.bsp)*

The high cost-saving potential shows that offshoring can help small companies maintain a streamlined structure, closely manage growth, and spread risks. A business can expand rapidly by using offshoring to access a higher specialized, sophisticated job without incurring extra cost (Buss, 2005).

Issues about Offshore Printing

Offshore printing involves many different issues, including both strengths and weaknesses. Today, within the printing industry, printers, buyers, brokers, and print consultants hold different opinions on the subject of offshore printing.

However, offshore printing issues include:

- Cost
- Turnaround time
- Convenience
- Skilled labor
- Advances in equipment
- Communication
- Quality
- Standards
- Copyright issues
- Inconsistent pricing
- Data security
- Political issues and cultural differences

Cost

"Printing in Asia can cut costs for some, but hardly all" (Weinstein, 2005). Cost within a printing project can be divided into labor cost, production cost, management cost, shipping cost, and material cost, such as paper and ink.

By taking advantage of currency exchange rates, overseas printers are able to provide U.S. clients average cost savings from 30 to 50%, principally derived from lower labor costs (Webb, 2005).

In general, for every dollar spent on business services that moves offshore, U.S. companies save 58 cents (McKinsey, 2003). Since there are lower labor costs, it allows overseas printers to offer a lower price for the printing job. In the U.S. printing plant, factory labor is 25% of the typical printer's costs, and the general and administrative costs are little bit more than 15%; that is a total of 40% of the printer's costs, not including the raw material and equipment cost (Webb, 2005).

In Asian countries, the labor cost is much lower than in the U.S.; for example, the minimum wage of an American worker is about $5 per hour, but in China, the hourly rate is about $0.61 cents (Nason, 2005). Therefore, for a four-color printing project or for those requiring creative finishing (such as die-cutting, embossing, and/or hand assembly), a lower labor cost will generate the client a 30 to 50% saving (Print Management, 2004). This substantial saving will never be achieved in the U.S., especially when a print job requires intensive hand-work (Hitchcock, 2005). Project savings will help a print buyer's bottom line, and/or achieve their lean production strategies (Print Management, 2004).

Beside of the low labor cost mentioned in the previous paragraph, *Backroads Magazine's* Micheaux says, "Asian firms generally do not charge extra for prepress work such as scanning in graphics" (Weinstein, 2005). This is also considered as part of the cost saving by printing overseas.

Paper is also less expensive in China. For example, on average, bond paper sells in U.S. for $800/ton; but in China, domestic-made bond paper sells for only $600/ton; also, the Chinese government offers subsidies to paper manufacturers to help lower costs (Skodzinski, 2004).

When buying print from overseas, a consideration of shipping cost is one of the most important factors to determine the project cost. Customers need to be concerned about the tax from country to country and from airport to airport. They need to make sure that the shipper gives them the total price, including taxes, shipping costs, duties, and levies. Therefore, no surprise cost will appear (Yorgey, 1994). The weight of paper can be massive; it would result in higher distribution costs that would outweigh the savings from lower labor costs (CMP information Ltd, 2004).

Although there is a low labor cost and paper cost saving, not everyone would benefit from using Asian printers; this is because the print volume will affect the shipping cost directly (Weinstein, 2005).

Turnaround time

There are different opinions about turnaround time. Timing is often the most critical part for most companies' campaigns (McKelvey, 2003). By printing overseas, a customer may need to allow extra time for several rounds of proofing (Tan, 2003). It also requires mailers to allow time in their schedules for couriers. Since couriers have a one-to-three day turnaround, if a customer sends out a courier to the Asia-Pacific on Friday, then the materials will be received on Monday (Yorgey, 1994). Therefore, customers need to be sensitive to the time lag. If something happens during the shipment, it may delay the initial release of the product to coincide with the targeted receipt date (Hawley, 2002). Therefore, if the job is marked “Urgent,” printing it locally may be the best choice (The Associated Press, 1993).

Crossblue states, “Turnaround is relatively faster when compared to a few years ago. Ocean shipping and ground transportation are very fast. When the schedule is tight, clients can always choose an air courier” (2004). This is especially true now that overseas printers are usually doing more commercial work and normally will run up to 10,000 pieces. Shipping the job via airfreight can reduce the turnaround time.

Dr. Joe Webb states, “An offshore operation’s turnaround time and flexibility may be less accommodating than that of a local supplier’s” (O’Brien, 2005).

Margery Weinstein from *Catalog Age* mentioned one drawback to printing offshore. He pointed out the extra lead-time necessary to accommodate transporting files, proofs, and especially the finished product between continents (Weinstein, 2005). Similarly, Webb says the longer lead times make overseas production inefficient for companies, such as consumer electronics catalogers that frequently change the pricing and selection of their merchandise. Costly problems sometimes arise when relying on shipments traveling by sea (Weinstein, 2005).

Convenience

Since many products are now imported from another country, it always makes sense to have packaging or collateral for a product done in its country of manufacture. Some nations do not allow the expatriation of hard-currency profits. Profits originating in these countries must be reinvested in the manufacture of products before they can be exported (Christensen, 1996).

Skilled Labor

Students overseas are highly skilled and technologically literate. Today, one of the world's leading engineering schools is in India, where 3,000 of the world's top engineering students enroll annually. It makes sense to offshore a print job to a place that has a highly motivated and educated workforce (Taillon, 2004).

In China, the constant growth of the printing industry is demanding better education. Right now, there are 12 universities and institutes that offer graphic arts related programs, with nearly 16,000 full-time students registered in the undergraduate and associate programs, and more than 380 full-time students registered in postgraduate programs (JAGAT, 2004).

The Beijing Institute of Graphic Communication, the School of Publishing and Printing at Shanghai University of Science and Technology, the School of Printing and Packaging Engineering at Xian University of Science and Technology, the School of Journalism and Communication at Wuhan University are involved in graphic education and offer quality curricula. Over the past two years, thousands of graduates have joined the industry. This has improved the knowledge structure and the quality of human resources (JAGAT, 2004).

Also, foreign support organizations, such as the Japan Association of Graphic Arts Technology (JAGAT) and European Funding for Asia Investment, both have done much work in supporting continuing education for the Chinese printing industry and have already achieved good results (JAGAT, 2004).

Advances in Equipment

Technology is available worldwide. Today, many Asian companies are investing heavily in new technology, and often with the same systems. In the past few years, manufacturers of printing equipment and supplies have built facilities in Asia. Companies like Agfa, Kodak Polychrome Graphics, FujiFilm, RR Donnelley, and Avery Dennison can be found in China, Hong Kong SAR, Singapore, and other Asian countries (Hitchcock, 2005).

The technological level of the top companies in China's printing industry is on a par with the best printing companies in the world. Some printing enterprises have reorganized their business, built information management systems, and deployed Enterprise Resource Planning (ERP.) In recent years, there has been an increase in usage of CTP, digital color proofing, commercial web-fed presses, and sheet-fed 8-color perfecting offset presses. In 2004, there were over 250 CTP installations nationwide. About 100 commercial web-fed presses were imported, installed, and went into operation in 2004. Recently, Komori, Mitsubishi, Akiyama International, and Heidelberg have released sheet-fed 8-color perfecting offset presses, targeting the mid- and short-run high-end market (JAGAT, 2004).

In 2003, the total value of production and export reached approximately RMB7 billion (U.S. $100 million). The annual import between 2001 and 2003 remained at the level of about U.S. $1.345 billion. The volume of import largely exceeded that of export. According to one source, between 2001 and 2003, 2,363 sets of sheet-fed color presses were imported. In 2003, 933 sets of sheet-fed presses, and 539 sets of web-fed presses were imported. China ranked third in the number of imported presses for 2003 (All in Print, 2004).

Communications

Some printers say it is hard to communicate with Asian printers, but some say that this is not a problem. *Strategies for Management's,* Vince Naselli states:

> Not all the countries are fluent in English, and printing terminology may be different between them. Therefore, translators and print brokers may be needed for communicating a job specification. Any misunderstanding may end up with the wrong job printed (2005).

Catalog Age's Margery Weinstein says, "Today, communicating with the Asian vendors is not a problem at all" (Weinstein, 2005). An offshore printing company with a U.S. sales office with a customer service representative is very common these days. Asian customer service representatives handling North American accounts speak English, and they can arrange in-person press checks for print buyers (Weinstein, 2005). This allows clients to communicate with the representative directly, locally enhancing the clarification of job specification and increasing print job accuracy and print time.

Some of the offshore printers, especially in India, are offering graphic design services to capture commercial printing work (Webb, 2005). In turn, this helps clients saving extra cost for hiring a designer.

Quality

There are different opinions on offshore printing quality in China. On the one hand, print consultant Dr. Joe Webb, says:

> Quality is also an important factor that needs to be addressed. Even with today's technology advances, it is still important to be concerned with the quality. Different printers have different equipment, which in turn will vary the quality (Webb, 2004).

On the other hand, the principal at Overseas Printing Corporation, Vito Badalamenti, says that

> …high-end books is how offshore printing began; stateside printers have caught up with their Asian counterparts when it comes to providing topnotch quality…[The] process is exactly the same as doing it here" (Weinstein, 2005).

Standards

The U.S. uses the English system for measuring, which differs from the International System that most other countries use. Before sending a print job overseas, customers need to be aware of the conversion of different measurement units.

Printing standards are different among different countries. The U.S. printing industry generally runs with the Specification for Web Offset Publications (SWOP) specification, but the European and Asian printing industry standards derive from ISO 2846 (Dick, 2005). Since standards specify different ink density and aim points, the customer needs to be aware of the printing standard exchange, because different standards may result in different colors.

Copyright Issues

There was an estimated $636 million of total U.S. losses due to copyright infringement and book piracy in 2004 (Hawley, 2002). If the customer is not a large, multi-national company with good financial support and aggressive legal counsel, then it is impossible to recover the lost revenue. For example, China and some other countries have not signed on to the copyright agreements. According to *Publisher's Weekly,* Russia is responsible for an estimated $48 million of copyright infringement, Pakistan for $44 million of copyright infringement, Philippines for $44 million of copyright infringement, India for $37 million of copyright infringement, South Korea for $35 million of copyright infringement, and Thailand for $28 million of copyright infringements (Hawley, 2002).

On the other hand, China is gradually recognizing the threat that copyright infringement poses to economic development. However, there is no noticeable improvement in the market for books and journals in China, with piracy hampering development of the legitimate market. The industry remains concerned that despite the small, but growing, number of publicized actions and fines, piracy of U.S. works continues unabated. According to industry figures, U.S. publishers lost an estimated U.S. $130 million of copyright infringement in China in 2000, continuing a trend of increasing losses over the past few years (MAC, 2005).

Beyond the copyright infringement problems all content providers in China face, foreign companies are saddled with additional burdens. While domestic copyright owners can deal directly with local copyright bureaus, foreign copyright owners wishing to pursue copyright infringement issues must go through the National Copyright Administration in Beijing. This procedure results in lengthy delays and goes against the principal of national treatment. China has agreed to eliminate this discriminatory requirement when it becomes a WTO member. Regulations on the use of copyright agents by foreign companies have not been finalized; this effectively prevents foreign companies from using agents to license copyrighted works. In addition, U.S. companies report that, to get copyrights enforced, they often must provide resources to China's under-staffed, under-funded enforcement agencies (MAC, 2005).

Inconsistent Pricing

Printing in most of the Asian countries may be faced with inconsistent pricing due to the fluctuation of currency exchange rate. Since there is no fixed currency exchange rate in the majority of the countries, political and civil unrest, as well as the stock market will modify the currency exchange rate up or down, along with corruption and supply availability, which may result in a surprisingly high cost for a job (Christensen, 1997).

Data Security

In today's global economy, the growing presence of offshore service providers requires decision-makers to consider several strategically important factors, such as long-term productivity and cost projections, physical security, and data security. Since information/data are assets, they need to be under efficient security. Since there is a distance separating the customer from the printer, customers need to consider the security risks of offshoring. Nason of *Graphic Arts Monthly* says,

> Contracts to recognize and mitigate data security risks by specifying procedures and handling for critical information should be agreed upon before starting the print job (2005).

It makes no sense to let the company have the unnecessary risks and costs of counterfeiting (The Associated Press, 1993).

Political Issues and Cultural Differences

Political agendas and cultural differences can lead to unforeseeable disasters. Customers should consider the potential impact of both local government and foreign government's policies then act before offshoring the job (Hickey, 2005).

New Technologies and Offshore Printing

There are several technologies that contribute to the move to offshore printing. These technologies are:

- Improvements in printing press, computer-to-plate workflows and digital proofing technologies
- Advancements in the Internet and telecommunications
- The existence of standard data exchange formats, example such as PDF

Technological advances in printing press, computer-to-plate workflows, and digital proofing technologies

Today, cutting-edge production technologies are available worldwide (Webb, 2004). Research from PIA's Davis reports that Chinese printers imported 2,400 sheet-fed presses and 540 web presses valued at more than $1.7 billion during the years 2001-2003 (Michelson, 2005). The increased quality of offshore printers over the past few years, plus the adoption of press-calibrated digital proofers and computer-to-plate devices have increased the credibility of offshore printing (Webb, 2005).

Digital proofing now allows quick review of materials by print buyers and managers who are more accustomed to remote workflows that are aided by advances in color management technology (WhatTheyThink, 2004).

Internet and Telecommunication Advances

Advances in Internet connectivity help print buyers and printers communicate easier through e-mail or Instant Messaging (Webb, 2005). Broadband telecommunications allow transmission of large graphic data files (WhatTheyThink, 2004). Mailing time and cost are no longer involved in the file transfer process, which helps shorten the proofing cycles and enables “time-shifting” when production work occurs overseas while clients are sleeping on the other side of the world.

Advances in the Internet also provide the opportunity for on-line proofing and PDF proofing. Clients can simply view the proof and approve the job over their computer monitors (Cataloq, 2004).

PDF

Adobe’s Portable Document Format PDF is a *de facto* standard file format that can preserve all fonts, formatting, colors, and graphics of any source document -- regardless of the application and platform used to create it. PDF files are compact and can be shared, viewed, navigated, and printed exactly as intended by anyone with a free Adobe Reader®. PDF workflows make job submission and color management easier for offshore vendors (Webb, 2005).

Conclusion

Offshoring printing is not new; it just started to become a significant and timely issue within the last couple years.

Offshore printing offers significant savings on per-unit cost for a typical print communication project, but these savings need to be paired with the freight and transport costs. Offshore printing has a certain impact on project planning and delivery timeframe; therefore, customers need to be accurate regarding their time schedule.

Technological advances improve the offshore printing company's competitive rate. Although technological barriers are being eliminated, there are other factors (such as language barriers, political issues, and currency exchange) that still need to be taken into account. The customers need to be prepared in order to have a successful offshore printing experience.

Since China entered the WTO in the year 2001, the China printing industry has been growing by double digits annually. Because offshore printing offers buyers and brokers a huge cost saving, U.S. printers seem to be worried. As stated before, four out of ten of their clients are seeking overseas printing, and one out of three say that they have lost at least one job to a Chinese printer (JAGAT, 2004).

Despite all we know about the Chinese Printing Industry, there is still considerable debate about what the implications may be for the U.S. Printing Industry.

Chapter 3

Methodology

This study applied primary research to fulfill the research objectives.

The data collection of the primary research was done through two different surveys. One survey was sent to U.S. print buyers, and the other survey was sent to Chinese printers.

These two surveys shed light on offshore printing issues by collecting data on the following questions:

- How do Chinese printers view U.S. offshore print buying trends in the future?
- How are Chinese printers planning to upgrade and improve their capabilities to acquire and handle the offshore print jobs?
- Is there a trend (an increase or a decrease) in offshore print buying from China?
- How do U.S. print buyers evaluate the need to send print jobs to China?
- What are the obstacles that prevent U.S. print buyers from buying print from China?

The U.S. print buyers survey was sent out by email and in PDF format. Vincent Mallardi from The Printing Brokerage/Buyers Association International helped with the distribution and collection of the surveys. The U.S. print buyers' survey targeted only the print buyers, brokers, and publishers.

The Chinese printers' survey distributed and collected using both mail and email. The survey sent out by this thesis researcher and the University of Shanghai for Science and Technology, College of Publishing and Printing. The selected main target for this survey was the Chinese printers considered to be the top 100 printers in China for 2004. The email database of those names was donated by a Chinese printing technology website (www.keyin.cn). More Chinese printers will be selected from the offshore printer contacts from *PIWorld Magazine.*

Limitations

There are some obstacles present in both surveys. Since this research involves a highly political topic. Therefore, we can't exclude the possibility that respondents to the survey may give out biased answers which could lead to the limitation on credibility of this research. Also, there is another obstacle, which is the large unknown target segment of print buyers. Print buyers can be anyone who buys print. Even a restaurant owner can also be considered a print buyer. Therefore, the print buyers' survey was distributed to both print buyers and brokerage professional associations; in addition, it was distributed to brokers and consultants who were found via the researcher's personal research online.

Since China has over 90,000 printers, if the researcher sends out surveys to each printer, it would require too much time and money for its completion. Therefore, the survey was only sent to the contact list from the University of Shanghai for Science and Technology, College of Publishing and Printing, the Top 100 Printers list, and the offshore printers list from *PIWorld Magazine.* In China, it is uncertain whether every targeted printer has access to the Internet; therefore, the surveys were distributed by using both mail and email in order to reach a higher return rate.

Data Analysis

The data collected from the survey were analyzed using statistical tools suitable for the nature of the data. Continuous data were analyzed with descriptive statistics, tested for normality and distribution, and applied with other suitable statistical tools. Discrete data were analyzed with charts and frequency tables. Data were tested for correlation between each other and were discussed. The survey data were collected from web databases, mail, and email. The data were imported into Excel format, and Microsoft Excel was used for the data analysis.

Chapter 4

The Results

There were two sets of surveys collected for this research. One survey targeted the Chinese printers, and the other targeted the U.S. print buyers. Each survey focused on offshore printing. The questions were designed to answer the problems addressed by this thesis.

The surveys for the Chinese printers were distributed by e-mail, with help from Jinghua Chen, Assistant Professor at the University of Shanghai for Science and Technology, College of Publishing and Printing. The U.S. print buyers survey was distributed by e-mail, phone, fax, and through different print buyer organizations. The contact lists of the Chinese printers were donated by one of the largest printing website in China, www.keyin.cn.   The contact list of the U.S. print buyers was obtained from the www.printaccess.com and PIWORLD magazine.

It is assumed that this population is an adequate demographic and geographic representation of the U.S. print buyers and brokers. The following sections will be separated into the categories of Chinese Printers and U.S. Print Buyers, with details in the descriptive results of the survey.

Final Survey - Chinese Printers

Demographic Profile

There were 800 online surveys sent out by email to the Chinese printers located in China. There were a total of 46 surveys completed and returned; 28 companies responded the online survey and the faxed survey, while the Shanghai University obtained 18 surveys.

The data reported by the respondents with best describe their businesses. As shown in Figure 3, 71% of the respondents are in commercial printing, 7% in packaging printing, and 22% in other printing-related business, such as exhibition, graphic, and finishing companies. Commercial printing encompasses the markets of books, catalogues, and magazines.

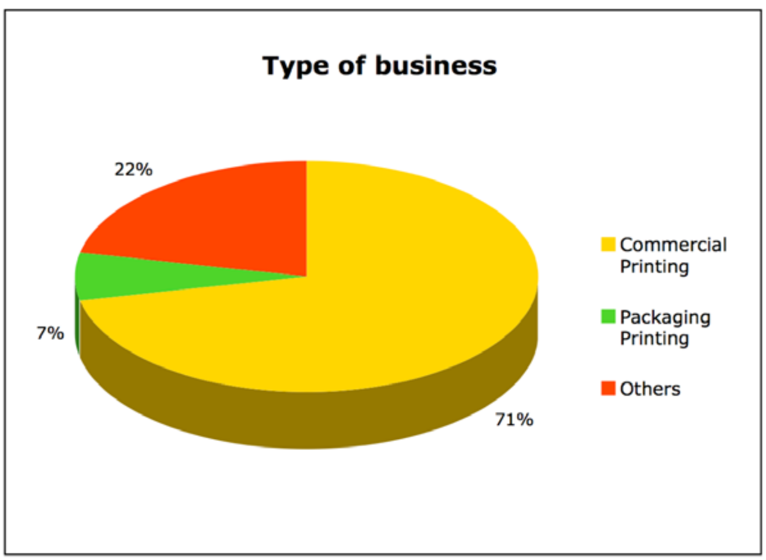

Figure 3. Type of business.

From the survey data collected, most of the companies who responded to the survey are classified as medium size companies (Figure 4). The company that operated for the longest time has been operating for 100 years, while the company with the shortest time running has been in operation for just one year. The average operational time is 30.8 years. The biggest Chinese printer surveyed employs 6000 people, while the smallest company has only 10 employees. The average number of employees for each printer is 630.

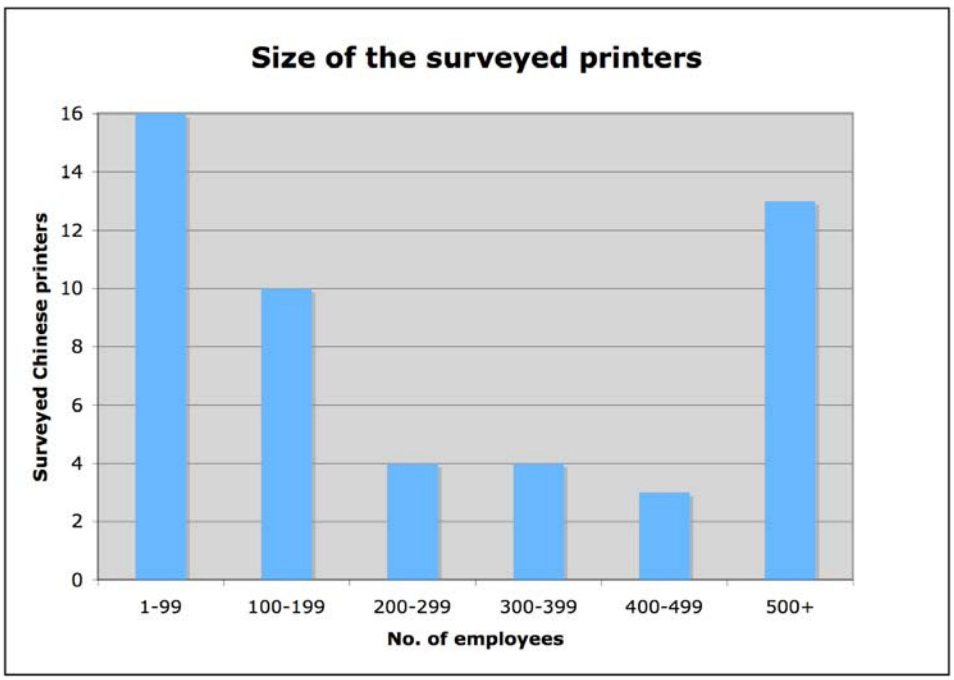

Figure 4. Size of the surveyed Chinese printers.

The average sales in prints were RMB 188,030,000 (U.S. $23 million) in 2004. The company who sold the most had U.S. $312.5 million in sales. The average sales in 2005 were RMB 230,269,000 (U.S. $27.8 million). By the time most printers completed this survey, it was still the fourth quarter of 2005, which means that most of these values are the expected values in sales for 2005. The highest expected sale among the surveyed printers is U.S. $475 million for 2005. Most Chinese printers have higher sales in 2005 than in 2004 (Table 1).

According to Table 1, the majority of the Chinese printers experienced an increase in sales from 2004 to 2005. Only two Chinese printers recorded a decline in sales. Amount the productivity level, the highest is US$ 446428.57 (number is wrong. Cannot be this high.) per employee, and the lowest is US$312.50 per employee during 2005, and both company are not providing offshore printing services, and are not actively seeking offshore customers from the U.S.

Interestingly, from the surveyed data, it shows that Chinese printers who perform offshore projects have an average 996 employees per printer, and their average growth in sales from 2004 to 2005 is 17.4%. Chinese printers who do not perform offshore project have an average of 194 employees, and a 21.5% average sales growth in 2004-2005. It shows that companies who perform offshore projects had a slower growth in sales from 2004 to 2005 (Table 2).

RMB sales in 2004 (RMB)	Expected Sales in 2005 (RMB)	Percentage changes 2004-2005	How many employees?	Sales per Employee 2005 (in $ USD) / Productivity Level	Do you currently do work for customers that are located in USA?	Are you actively seeking work from US customers?	If YES, what & of your revenues in 2004 came from US customers?	Revenues in 2004 came from US customers (in $USD)
1000000	2000000	100.00%	120	2083.33	N	N		0
2500000000	3800000000	52.00%	1600	296875.00	Y	Y	0	0
8000000	12000000	50.00%	14	107142.86	N	N		0
1000000	1500000	50.00%	22	8522.73	N	N		0
60000000	80000000	33.33%	100	100000.00	N	N		0
50000000	65000000	30.00%	100	81250.00	Y	Y	20	1250000
1200000000	1500000000	25.00%	420	446428.57	N	N		0
12000000	15000000	25.00%	30	62500.00	N	N		0
20000000	25000000	25.00%	100	31250.00	Y	Y		0
12000000	15000000	25.00%	314	5971.34	N	1		0
50000000	60000000	20.00%	30	250000.00	N	N		0
15000000	18000000	20.00%	35	64285.71	N	N		0
25000000	30000000	20.00%	80	46875.00	Y	Y	5	156250
50000000	60000000	20.00%	300	25000.00	Y		30	1875000
50000000	60000000	20.00%	400	18750.00	N	N		0
500000000	600000000	20.00%	6000	12500.00	Y	Y	30	18750000
5000000	6000000	20.00%	100	7500.00	N	N		0
8000000	9500000	18.75%	78	15224.36	Y	Y	15	150000
3000000	3500000	16.67%	20	21875.00	N	Y		0
6000000	7000000	16.67%	100	8750.00	N	Y		0
13000000	15000000	15.38%	103	18203.88	N	Y		0
20000000	23000000	15.00%	30	95833.33	N	N		0
140000000	160000000	14.29%	300	66666.67	Y	Y	1	175000
21000000	24000000	14.29%	97	30927.84	Y	Y	10	262500
21000000	24000000	14.29%	97	30927.84	Y	Y	10	262500
3500000	4000000	14.29%	30	16666.67	N	N		0
220000000	245000000	11.36%	696	44001.44	Y	Y	30	8250000
140000000	150000000	7.14%	172	109011.63	N	Y		0
560000000	600000000	7.14%	2000	37500.00	Y	Y	30	21000000
400000000	420000000	5.00%	750	70000.00	N	Y		0
50000	50000	0.00%	20	312.50	N	N		0
30000000	30000000	0.00%	20	187500.00	N	N		0
130000000	130000000	0.00%	400	40625.00	N	Y	0	0
100000000	100000000	0.00%	360	34722.22	N			0
600000000	600000000	0.00%	3000	25000.00	N			0
600000	600000	0.00%	20	3750.00	N	N		0
185000000	170000000	-8.11%	536	39645.52	Y	N	1.5	346875
12000000	10000000	-16.67%	258	4844.96	N	N		0

Table 1. Surveyed Chinese printers' sales, productivity level and revenue.

	Printers who perform offshore projects	Printers who do not perform offshore projects
Average no. of employees	996	194
Average growth in Sales (2004-2005)	17.40%	21.50%

Table 2. Surveyed Chinese printers' average no. of employees and average growth in sales (2004-2005) vs. perform offshore projects

Services Provided by Chinese Printers

From the data collected, it is apparent that most of the Chinese printers produce color books and packaging (Figure 5).

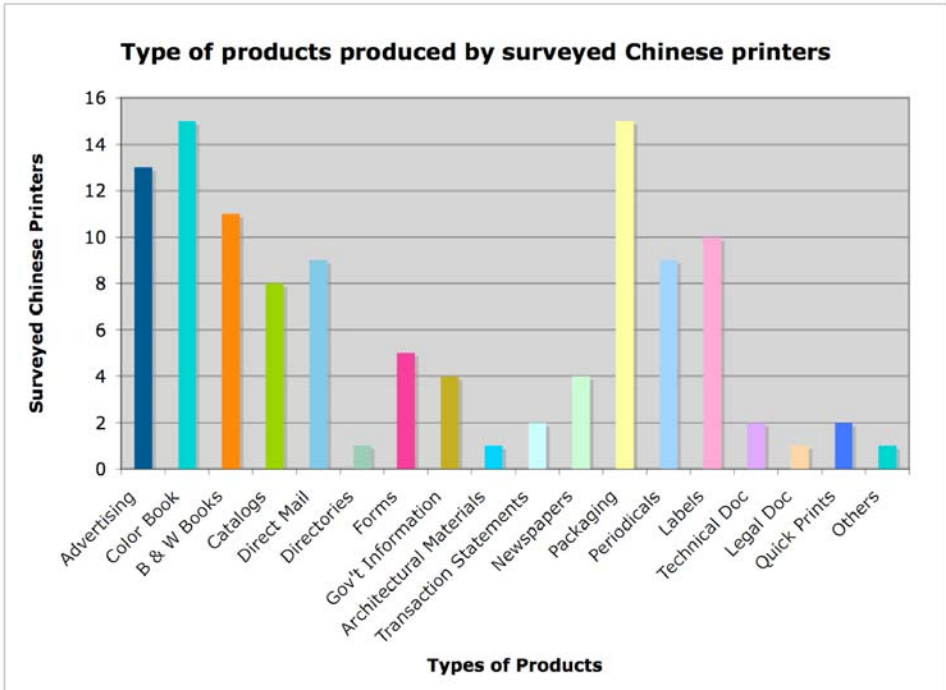

Figure 5. Type of products produced by surveyed Chinese printers.

Among the services other than printing that they provide for their customers, the most numerous are prepress and design, pre-media, and laminating and mounting services. Five of the companies said that they provided exhibition design and color management services, which were not included in the survey choice (Figure 6).

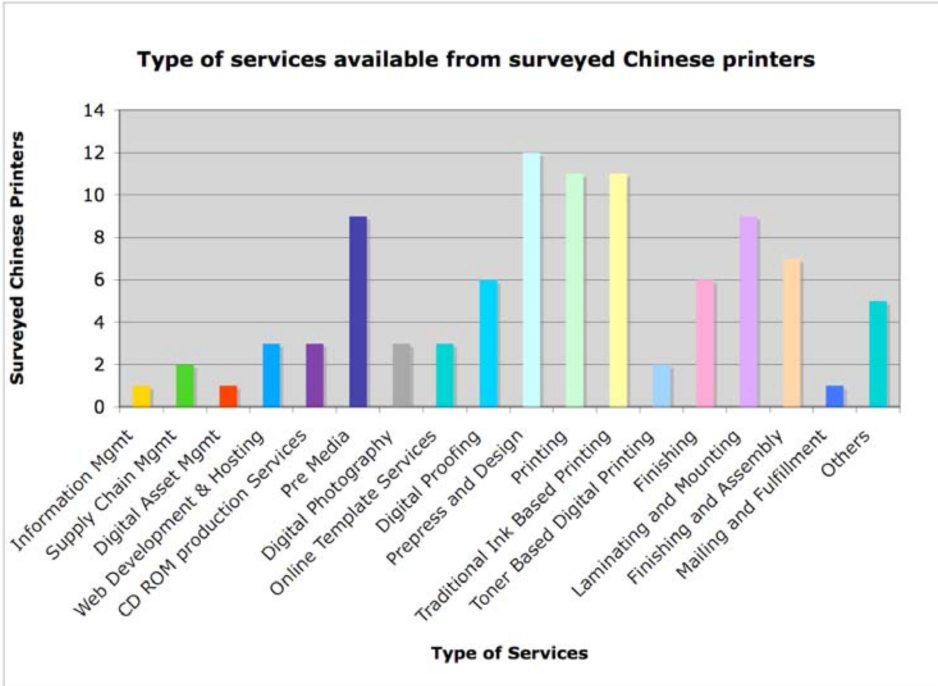

Figure 6. Type of services available from surveyed Chinese printers.

Sales and Revenue

As shown in Figure 7, 17 surveyed Chinese printers are currently providing U.S. customers with offshore printing services. Among those Chinese printers that provide services to U.S. customers, 57.1% state that their revenue from U.S. customers is less than 10% of their total sales. 7.1% state 10-19%, 14.3% state 30-39%, 14.3% state above 50% (Figure 8). The average revenue coming from the U.S. customers is 18.5% of the total sales.

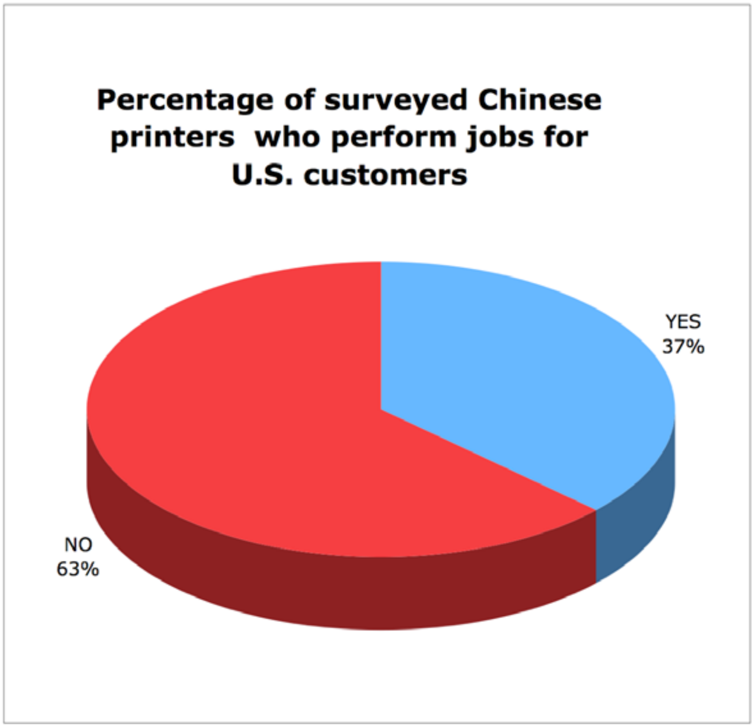

Figure 7. Percentage of surveyed Chinese printers who perform jobs for U.S. customers.

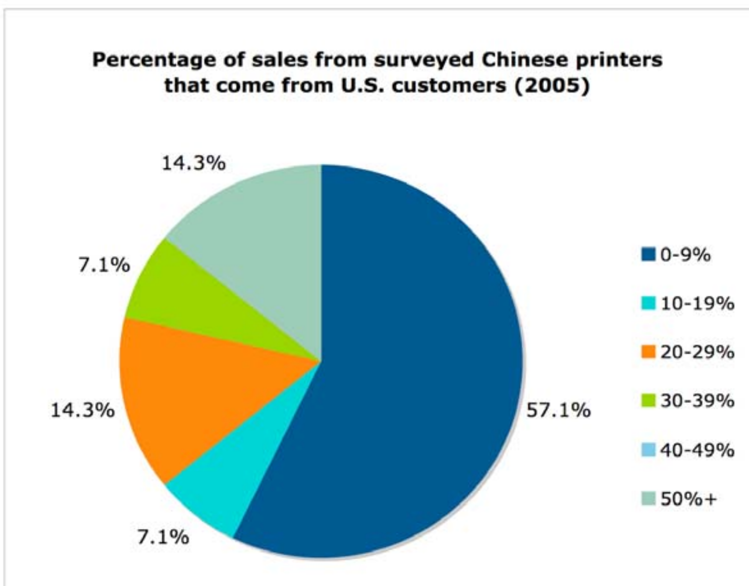

Figure 8. Percentage of sales from surveyed Chinese printers that come from U.S. customers (2005).

According to the data collected, for each Chinese printer who performed offshore projects for U.S. customers, there is an average sales of RMB 38,165,000 (U.S.$4.7 million) that comes from U.S. customers in 2004, and RMB 48,497,000 (U.S. $6 million) that comes from U.S. customers in 2005, which is a 21.3% increase. The amount of the print buying cost is generated from the sales in 2004/2005 x the revenues in 2004/2005 that come from the work performed for U.S. customers.

Investors

Among survey respondents, 64% of the Chinese printers have Chinese investors, 18% have U.S. investors, and the remaining 18% have investors who are from Germany, Indonesia, and Japan (Figure 9).

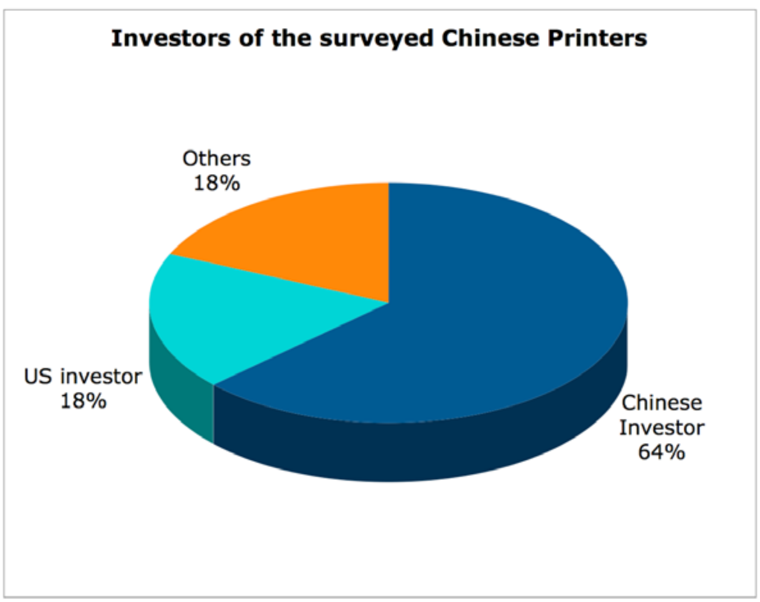

Figure 9. Investors of the surveyed Chinese Printers.

Print Volume

From the surveyed data, 33.3% of the Chinese printers said that their print volume from U.S. customers was between 0 to 9% of their total volume, 22.2% said 10-19%, 33.3% said 30- 39%, and 11.1% said more than 50% (Figure 10).

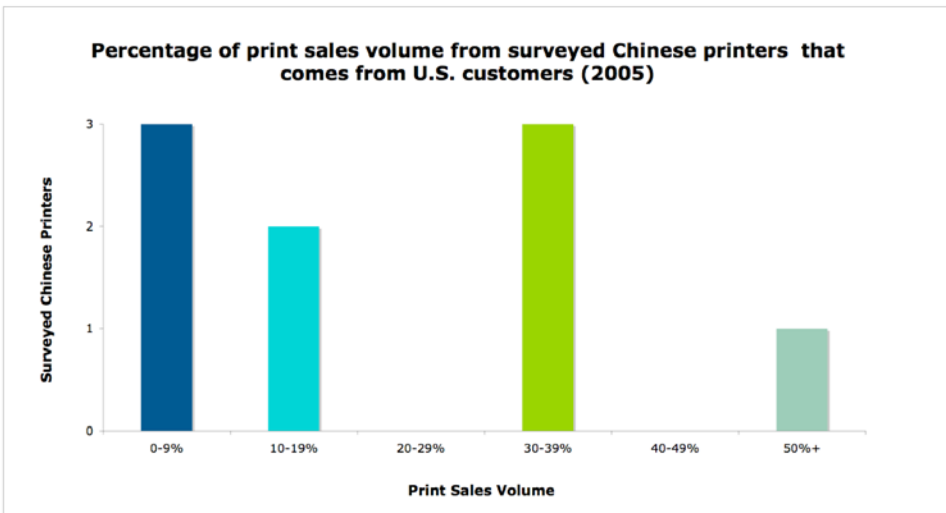

Figure 10. Percentage of print sales volume from surveyed Chinese printers that come from U.S. customers (2005).

Services that the U.S. Customers Purchased from Chinese Printers

From the respondents, 17 out of 46 Chinese printers surveyed shared the following information. Nine of them said that in the last 12 months, their U.S. customers purchased services from them, and the final products were shipped to other countries, instead of to the U.S. There is a mean of 56.3% of the final print products sent out to other countries.

According to the data collected, most of the Chinese printers provided color book printing, packaging printing, and black and white book printing to U.S. customers. The most common services other than printing which are purchased by U.S. customers from Chinese printers are information management, pre-media, digital photography, digital printing, prepress and design, binding and mailing, and fulfillment services (Figure 11).

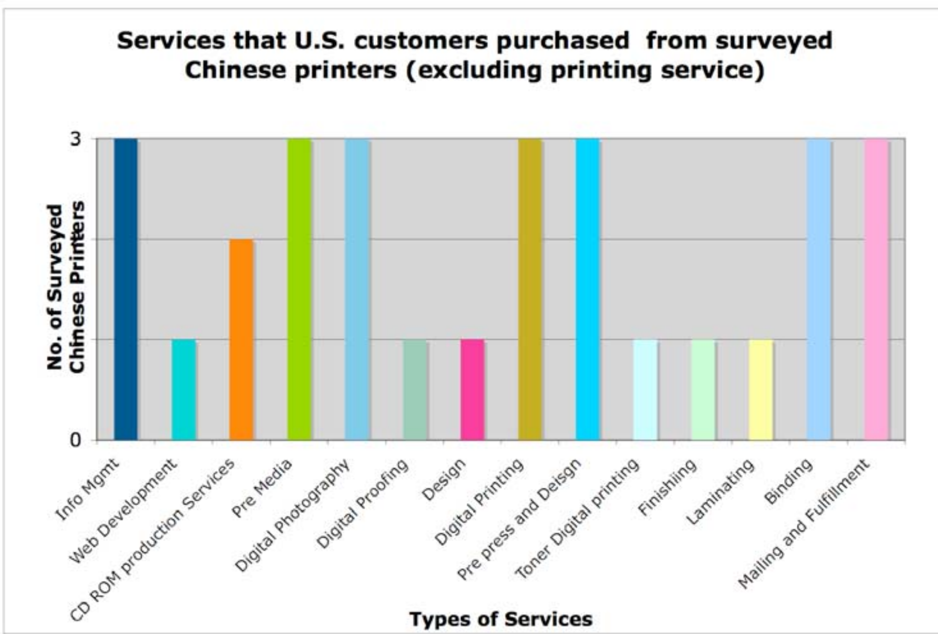

Figure 11. Services that U.S. customers purchased from surveyed Chinese printers (excluding printing service).

Seventy-two percent of the respondents expect that the level of print exports to the U.S. will increase within the next two years, while the remaining

28% of them say that the level would remain constant. None of the Chinese printers that export to the U.S. expect that the offshore business will decrease (Figure 12).

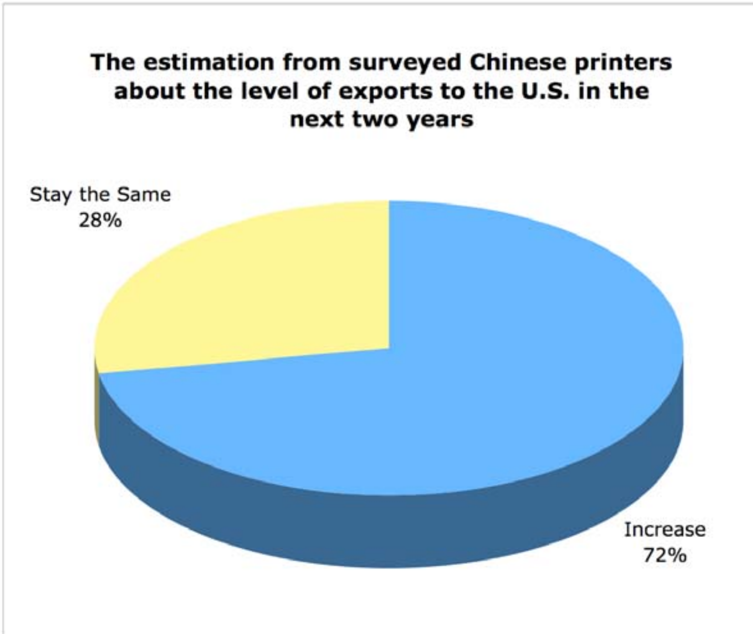

Figure 12. The estimation from surveyed Chinese printers about the level of exports to the U.S. in the next two years.

Offshore Projects' Specifications

In order to find out if there are any similarities among the print projects purchased by the U.S. customers, the survey defined the job specifications into five categories. These categories are: print run length, print quality, turnaround time, labor intensity, and job specifications. This will give a general idea of what kind of projects are being sent for offshore production by the U.S. customers. If the respondent answered that the category had no similarity, this meant that the jobs in the category were distributed uniformly.

From the collected survey data, most of the U.S. customers require having a moderate to high print quality. There are just a few Chinese printers who said that the quality requirement varies among the print projects that are received from U.S. customers, which means some projects may require lower quality than others, while some may require higher quality than others.

Most of the print jobs from U.S. customers have a moderate print run length, which may be the reason for their shipping cost. There is a high cost in producing moderate run lengths in the U.S., which would explain why U.S. customers choose to offshore their moderate run lengths. However, almost 1/3 of the surveyed Chinese printers mentioned that the print run length from U.S. customers had no similarity between them.

Considering the turnaround time, most of the Chinese printers said that their jobs from U.S. customers have a medium to long turnaround time. Only one Chinese printer said that their U.S. customers give them a short turnaround time. One of the biggest factors that affect the turnaround time is the shipping time. A medium to long turnaround time would probably let the Chinese printers ship the final project by surface, instead of by air, which will help the print buyers save an additional cost.

Regarding job specifications, most of the jobs sent offshore by the U.S. customers' required moderate labor. This is probably because of the lower labor cost, as compared with U.S. printers.

The majority of the jobs sent from U.S. customers to Chinese printers require more than 4 colors with coating, and finishing. This also is influenced by the lower labor cost in Chinese printers, with which U.S. printers are not be able to compete (Figure 13).

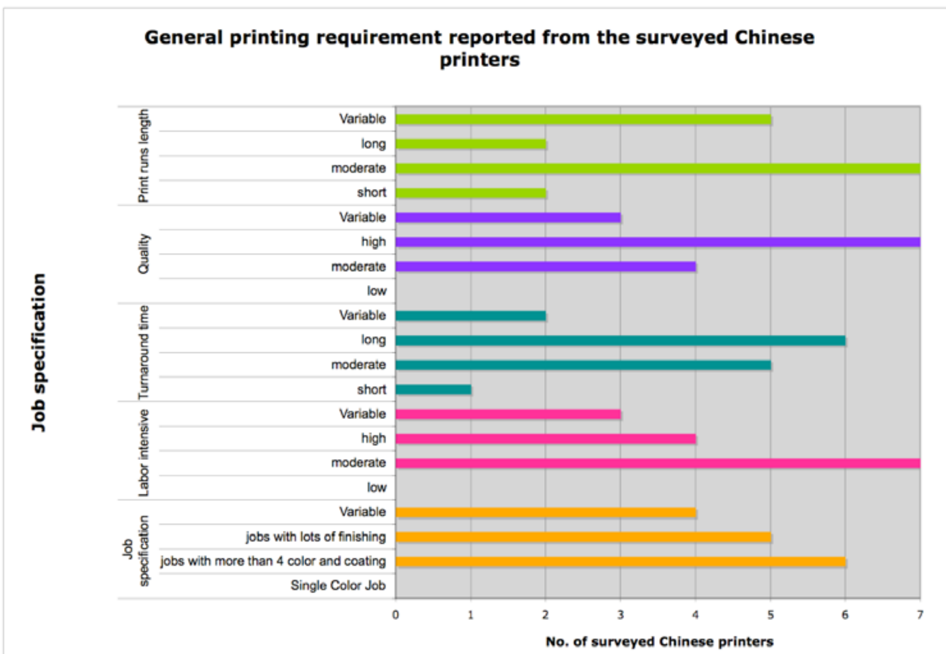

Figure 13. General printing requirement reported from the surveyed Chinese printers

Chinese Printers and Offshoring

From the survey data collected, it is apparent that 51% of the Chinese printers said that they are actively seeking work from U.S. customers, while the rest of the printers might still be actively looking for offshore business, but not from the U.S. One out of two surveyed Chinese printers is seeking U.S. customers and is prepared for the future offshoring trend (Figure 14). Also, 46% of the Chinese printers who are seeking for the U.S. customers are medium to largest size companies, with over 250 employees (Figure 15).

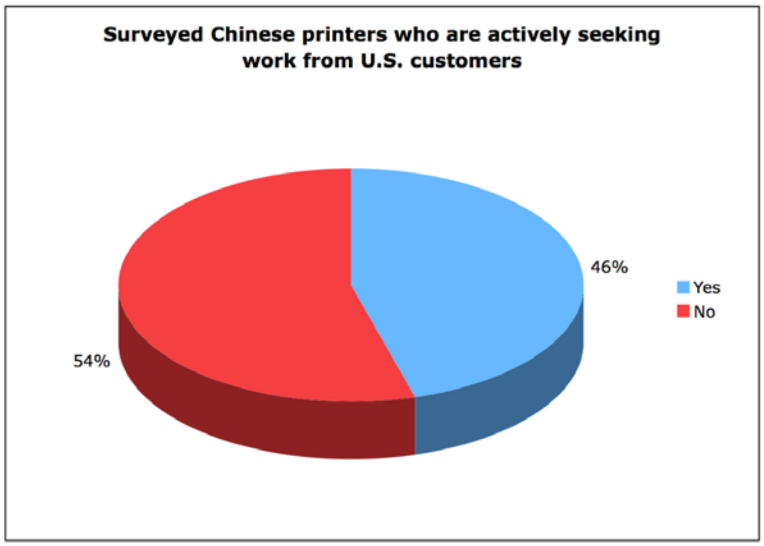

Figure 14. Surveyed Chinese printers who are actively seeking work from U.S. customers.

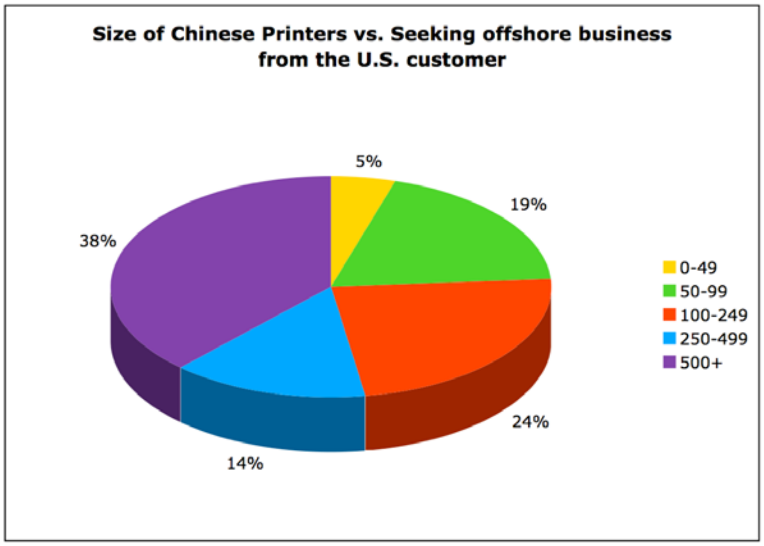

Figure 15. Size of surveyed Chinese printers vs. Seeking offshore business from the U. S. customer.

Among those Chinese printers who are seeking U.S. customers, 10 are seeking customers through Trade Shows, 8 have set up sales offices in the U.S., 7 through industry associations, 5 of them through the Internet, 5 through print brokers, and 3 via trade publications (Figure 16).

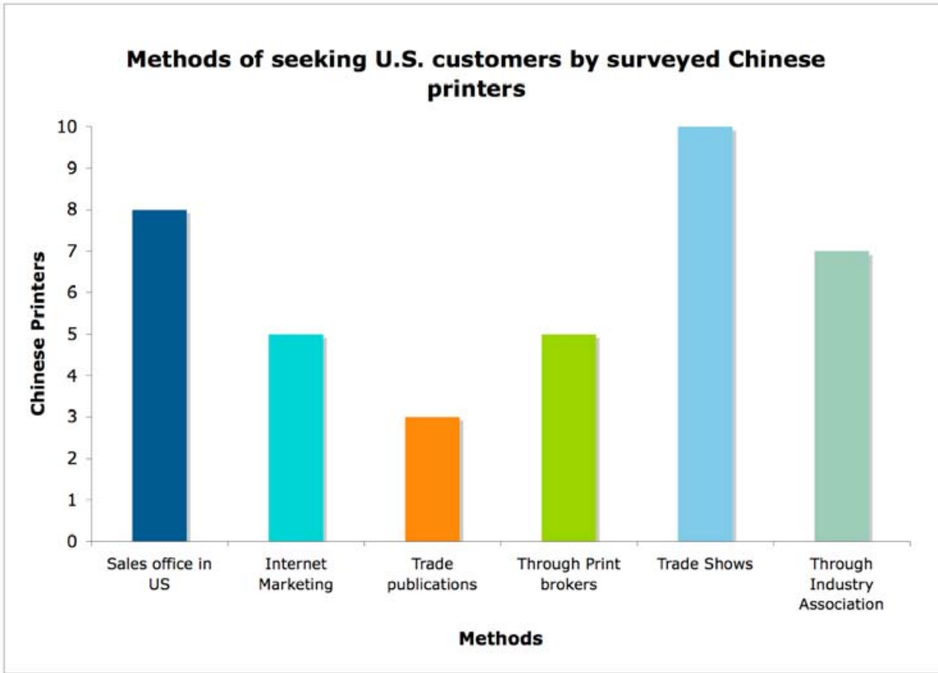

Figure 16. Methods of seeking U.S. customers by surveyed Chinese printers.

Besides providing all of the above collected data, Chinese printers mentioned that there are barriers that prevent them from seeking more U.S. customers. Those barriers include the technology level, standards, language proficiency, law, pricing, logistics, and print quality level. Because of these barriers, Chinese printers should make certain preparations prior to greater offshoring. From the survey data collected, it is apparent that there is an average U.S. $4 million invested in year 2004. The investment is mostly used for equipment, presses, and Management Information Systems (MIS) (Figure 17).

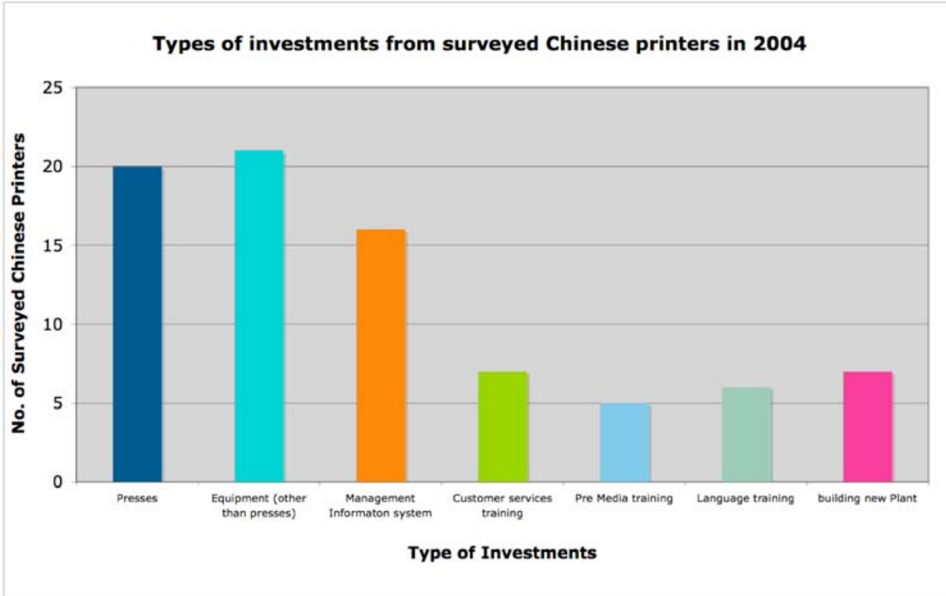

Figure 17. Types of investments from surveyed Chinese printers in 2004.

Relationship Between the Investors and Offshoring

From the data collected, it is apparent that 9% of the Chinese printers whose investors are U.S. companies do not work on any offshoring projects for U.S. customers. These U.S.- invested Chinese printers are only focusing on the domestic Chinese market. It is apparent that there are two Chinese printers that have the highest capital investment in their company during 2004, which is an investment of U.S.$18 million each. A Chinese investor invests in one of them, while a U.S. investor invests in the other one. This U.S. investor does not focus on performing offshore projects, but rather on projects for the domestic print market. Those Chinese printers who are working with offshore projects are mostly invested by either the Chinese investors or investors from other countries, such as Germany and Japan (Figure 18).

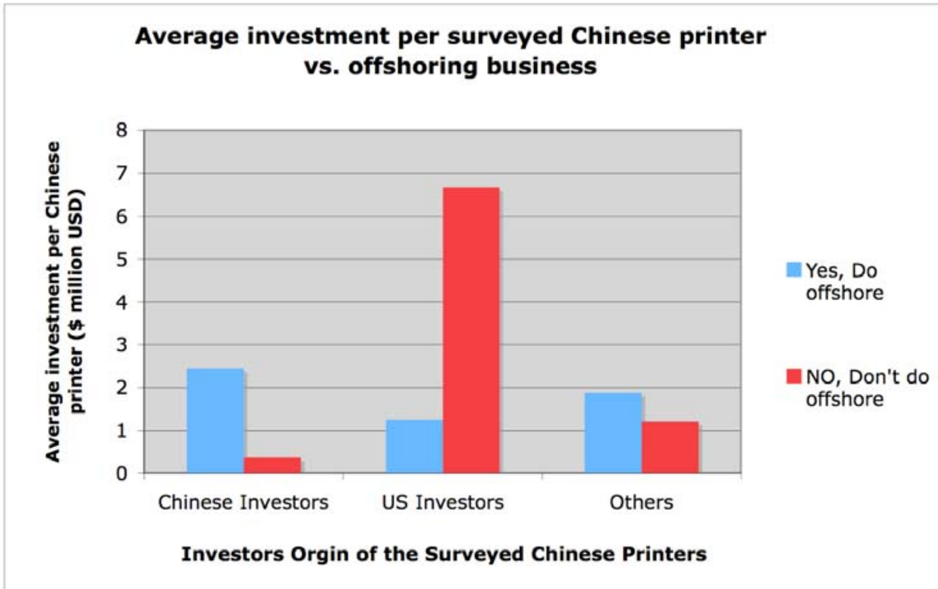

Figure 18. Average investment per surveyed Chinese printer vs. offshoring business.

From the collected survey data, the Chinese printers who have the largest sales are not those who are currently working for U.S. customers, but those who work for the domestic print market, and probably market from other countries. Figure 19 shows the current distribution of companies working for U.S. customers and those that do not.

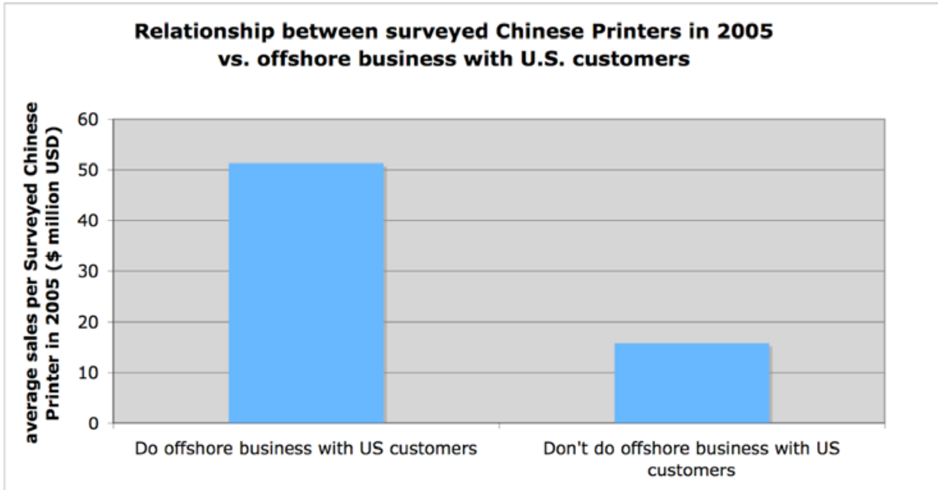

Figure 19. Relationship between surveyed Chinese Printers in 2005 vs. offshore business with U.S. customers

The average number of employees of Chinese printers who work for U.S. customers is higher than those who do not (Figure 20). This is not surprising, since most of the offshore projects are more labor intensive, and require more sophisticated job specifications; therefore, a Chinese printer who has higher workforce may perform better and finish the project faster.

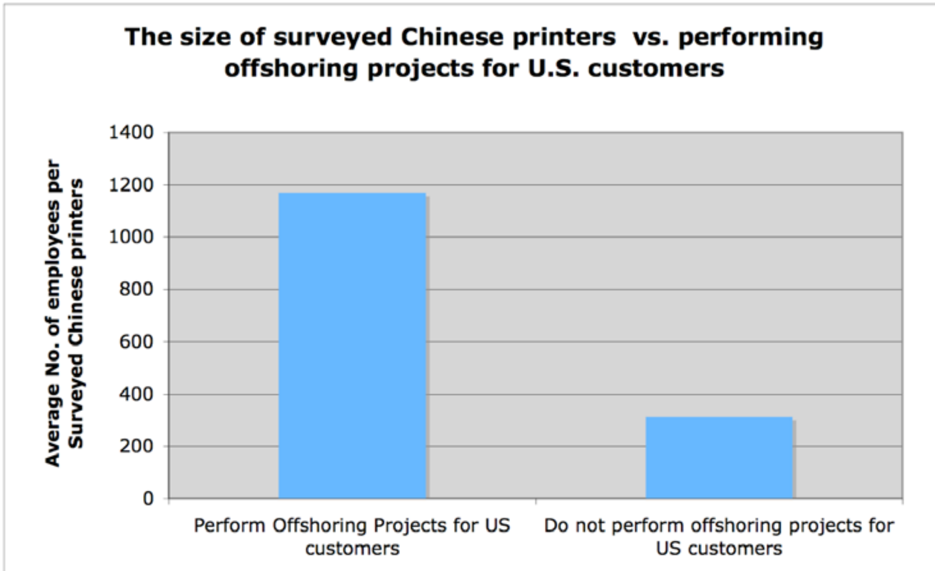

Figure 20. The size of surveyed Chinese printers
vs. performing offshoring projects for U.S. customers.

Final Survey – U.S. Print Buyers

Demographic Profile

Out of 300 online surveys and 300 telephone surveys solicited from U.S. Print Buyers, a total of 42 completed surveys where obtained; 19 companies responded to the online survey, and 23 responded to the phone survey. The survey demographic was obtained from www.printaccess.com and *PIWORLD Magazine*, and different print buyers' groups delivered it.

From the data collected, 40 companies shared their sales information from 2004 and 2005. In 2004, there was an average of $35.7 million of print bought from each company, and an average of $35.8 million in print bought from each company in 2005. This is an average of $15,974 of print buying increase between 2004 and 2005.

From the data collected, 31% of the surveyed print buyers said that the print amount they bought in 2005 is higher than in the year 2004. Fifty percent of the print buyers said their print buys remained unchanged, and 19% of the print buyers said their print buy amount decreased from year 2004 (Figure 21).

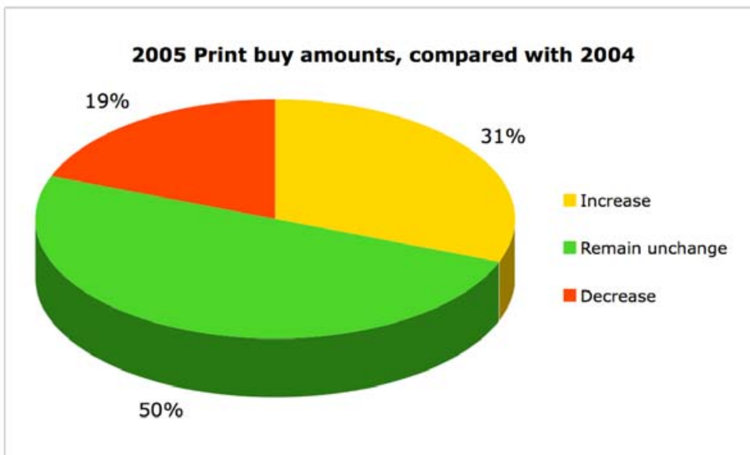

Figure 21. 2005 Print buy amounts, compared with 2004.

The products that U.S. print buyers buy the most from printers are color books, black and white books, direct mail, labels, and catalogs (Figure 22). Among the services offered by printers, the most common services purchased are finishing, digital proofing, laminating and mounting, and finishing and assembly (Figure 23).

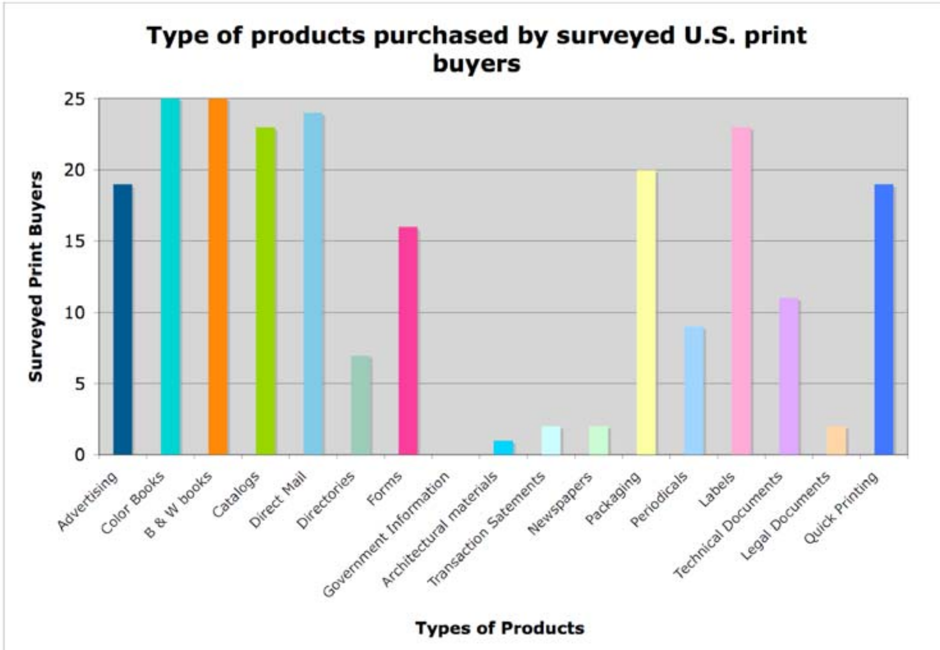

Figure 22. Type of products purchased by surveyed U.S. print buyers.

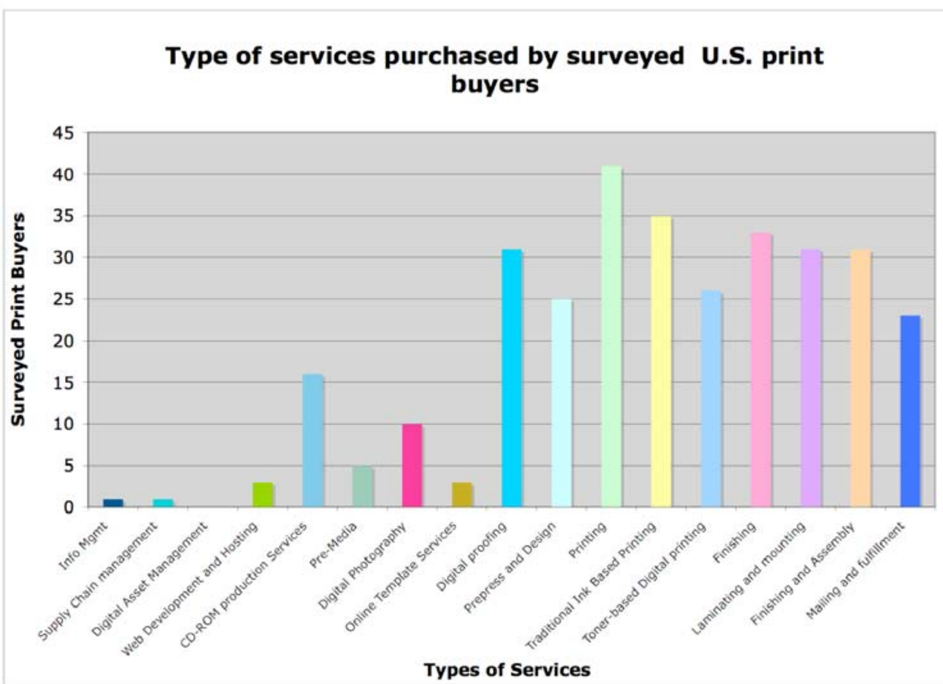

Figure 23. Type of services purchased by surveyed U.S. print buyers.

Print Buyers and Offshore Printing

Among the surveyed print buyers, 40% of the print buyers currently purchase print from overseas markets (Figure 24).

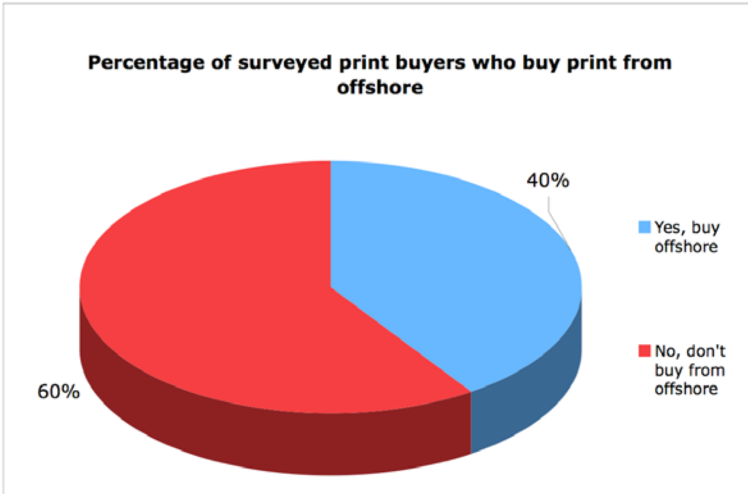

Figure 24. Percentage of surveyed print buyers who buy print from offshore.

Thirty-three percent of the surveyed print buyers said that they purchased print from Chinese printers. Seven percent of the print buyers do not purchase print from China, but rather will purchase them from overseas printers in other locations, for example, Mexico, India, Canada, and others (Figure 25).

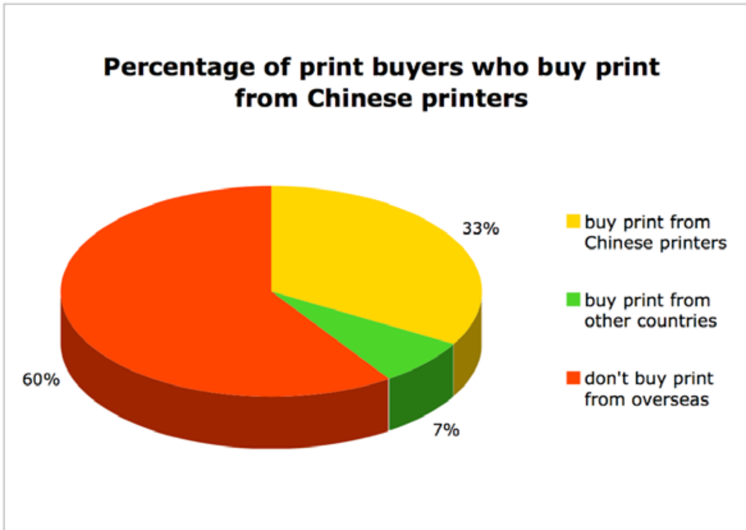

Figure 25. Percentage of print buyers who buy print from Chinese printers.

For those U.S. print buyers who bought print from Chinese printers, most of them purchase color book printing, catalog printing and packaging printing (Figure 26), and digital proofing, finishing and laminating and mounting services from Chinese printers (Figure 27).

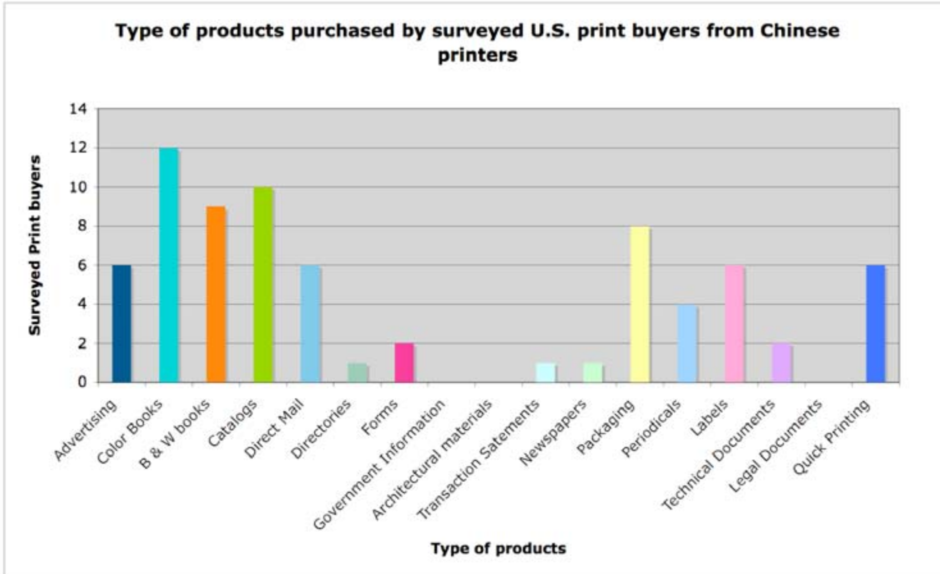

Figure 26. Type of products purchased by surveyed U.S. print buyers from Chinese printers.

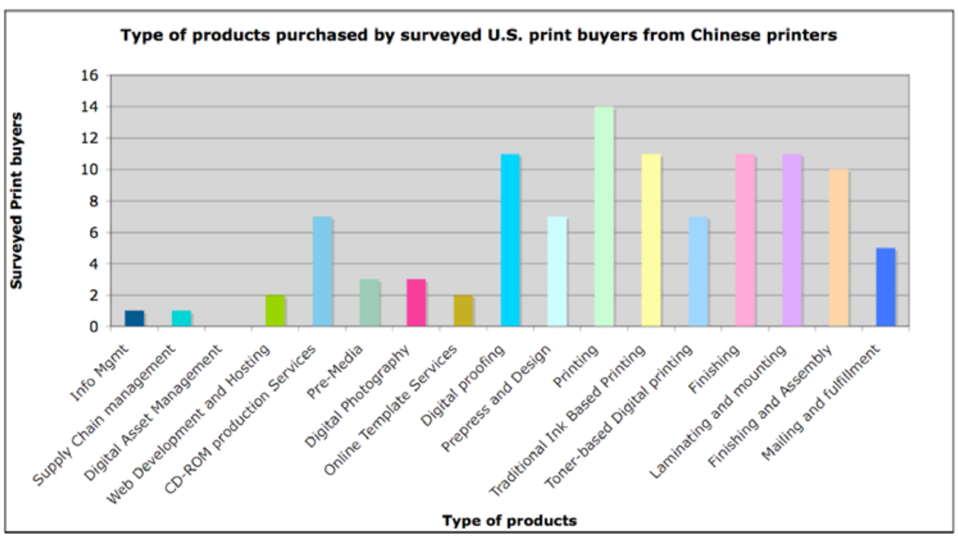

Figure 27. Type of services purchased by surveyed U.S. print buyers from Chinese printers.

Within that 7% of U.S. print buyers who are currently not buying print from Chinese printers, 7 of them say that turnaround time is the biggest issue. There were two responses for each of these issues: political reasons, pricing not attractive enough, and legal issues. One of the U.S. print buyers is concerned about confidentially, and one of the print buyers is concerned about the print quality (Figure 28).

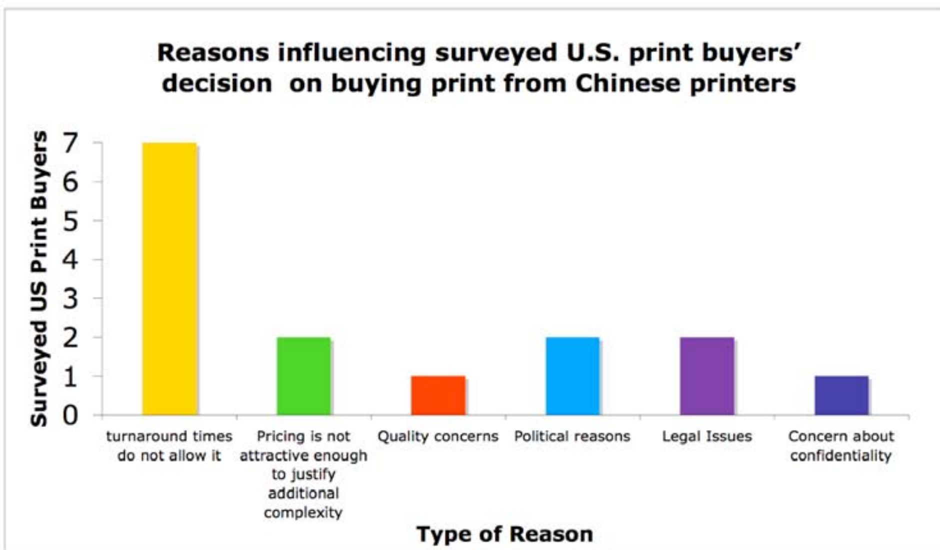

Figure 28. Reasons influencing surveyed U.S. print buyers' decision on buying print from Chinese printers.

For those surveyed print buyers who are currently purchasing print from Chinese printers, seven located the Chinese printers through referral, eleven through Internet browsing, five through publications, one through catalogs, and the rest used other means, including flying to China to search for printers (Figure 29).

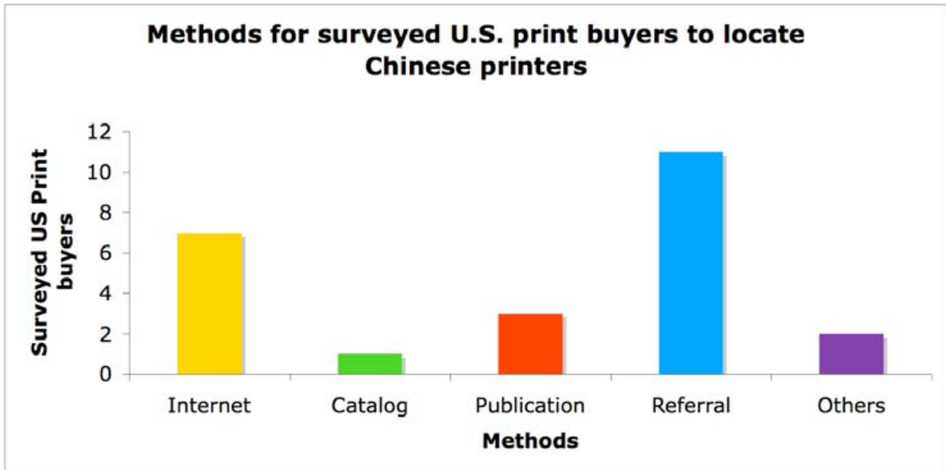

Figure 29. Methods for surveyed U.S. print buyers to locate Chinese printers.

According to the data collected from those print buyers who currently purchase print from Chinese printers, the average time the print buyers have done business with Chinese printers is 8.5 years. As shown in Figure 34, 54% of them have purchased prints from Chinese printers for 0-5 years, 15% for 6-10 years, 8% for 11-15 years, 15% for 16-20 years, and 8% for 21-25 years (Figure 30).

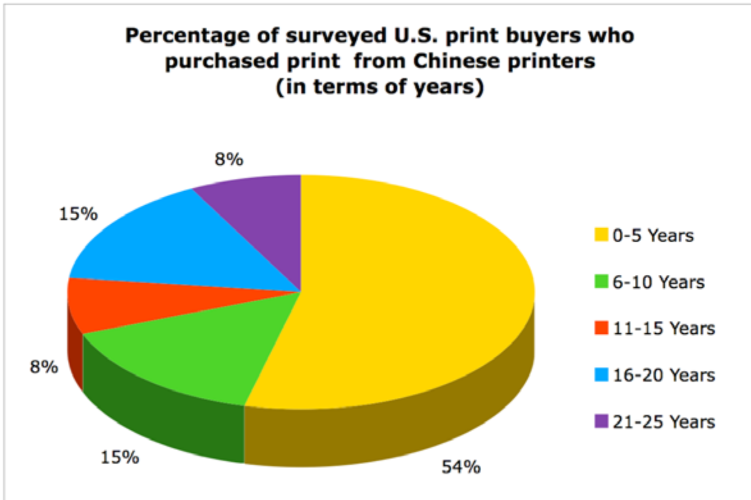

Figure 30. Percentage of surveyed U.S. print buyers who purchased print from Chinese printers (in terms of years).

From this information, it seems that there are more and more new print buyers buying print in China. Some print buyers have been buying print from Asia for many years, but have just recently started buying from China.

Comparing the prices between jobs printed by Chinese printers or U.S. printers: 7% of print buyers say they can save 1-10% of the total cost; 14% can save 21-30%; 30% can save 31-40%; 21% of print buyers can save 41-50%; 14% can save 51-60%; 7% can save 61-70%; and 7% can save 71-80%. The prices depend mostly on how complicated the project is: the more labor intensive the project is, the more cost saving there would be to print in China, because there is a large cost difference between Chinese printers and the U.S. printers in terms of the labor rate (Figure 31).

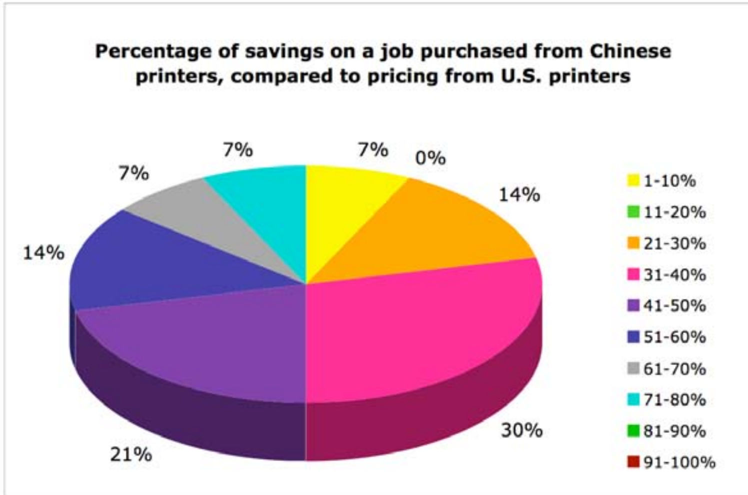

Figure 31. Percentage of savings on a job purchased from Chinese printers, compared to pricing from U.S. printers.

Figure 32 shows a decreasing tendency in the amount of offshore print bought from Chinese printers from 2004 and 2005. From the figure, four print buyers said their buying level remain the same from 2004 to 2005, another four print buyers said their print buying level increased in 2005 compare to 2004, and six print buyers responded that their buying level decreased in 2005 compare to 2004. In 2004, the average print buying amount per print buyer was $1.2 million, while in 2005, the average print buy amount was $1.18 million dollars. This is a 1.67% decrease in print bought from Chinese printers.

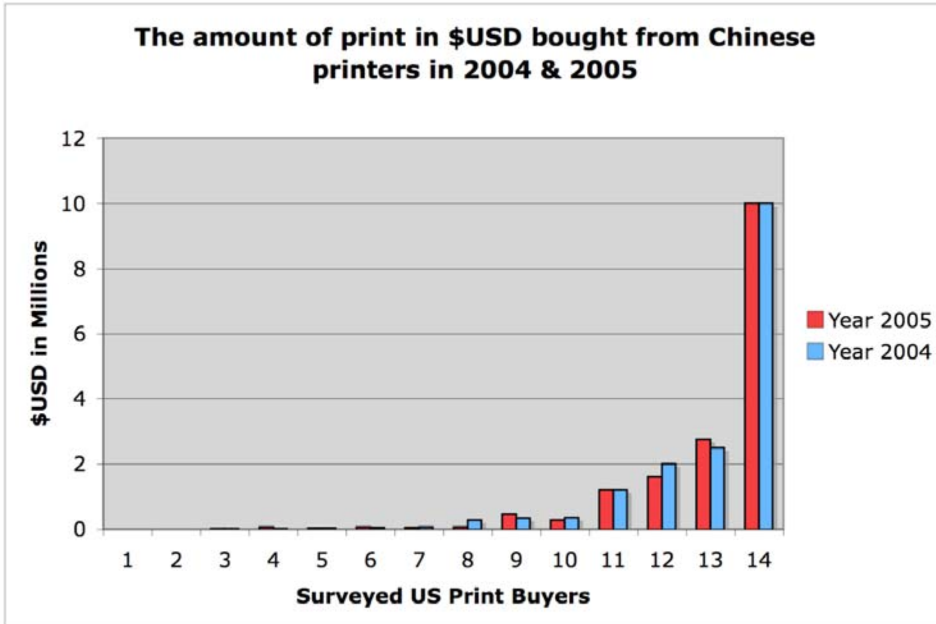

Figure 32. The amount of print bought from Chinese printers in $U.S. (2004 vs. 2005).

Time Issues

From the data collected, it is apparent that the average process time from placing a project to a U.S. printer to being ready for shipping is 2.6 weeks, and 6 weeks process time for placing a project to a Chinese printer to being ready for shipping. This is a 3.4 - week difference between U.S. printers and Chinese printers. The longest process time for a U.S. printer is 5 weeks, and the shortest is overnight. The longest process time for a Chinese printer is 10 weeks, and the shortest is 2 weeks (Figure 33).

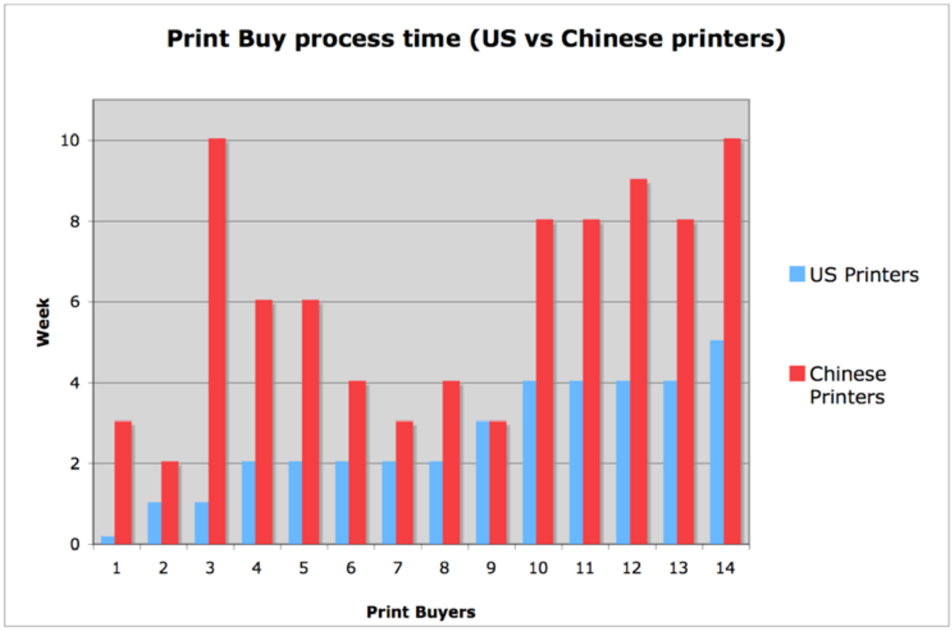

Figure 33. Print buy process time (U.S. printers vs. Chinese printers).

The collected data also shows that the average shipping time accuracy for U.S. printers is 93%. For Chinese printers, it is 90%, so there is only a 3% difference. As shown in Figure 34, 4 out of the 14 print buyers (29%) state that, from their experience, the Chinese printers' shipping accuracy is lower than the U.S. printers.

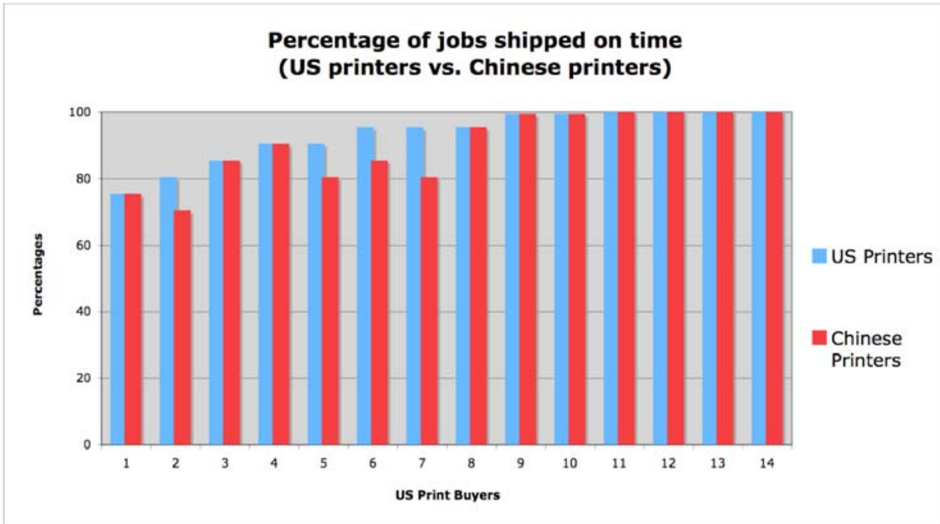

Figure 34. Percentage of jobs shipped on time
(U.S. printers vs. Chinese printers).

Concerning the purchasing quality, 65% of the print buyers indicated that the prints they purchased from Chinese printers have the same quality as those from the U.S. printers. Twenty-one percent said that the Chinese printers have a slightly higher print quality than U.S. printers, and 14% said Chinese printers have slightly lower quality than U.S. printers (Figure 35).

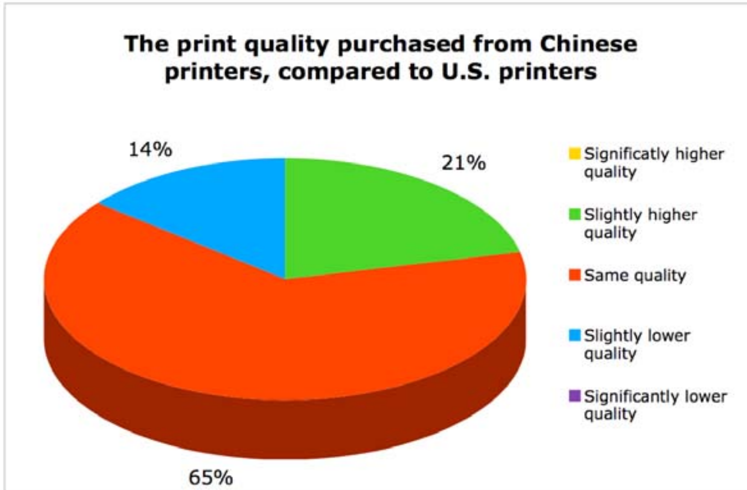

Figure 35. The print quality purchased from Chinese printers, compared to U.S. printers.

Print Buyers' Evaluation and Concerns

Sixty-seven percent of the surveyed print buyers do not buy from China. These were asked how their companies have felt about buying from China. Forty-four percent said that they've talked about it, but never seriously considered it as an option. Thirty-one percent said that they considered it, evaluated it, and rejected it. Nineteen percent said that this topic has never even come up for discussion. Six percent said they go through an evaluation and plan to do it in the next 12 to 18 months (Figure 36).

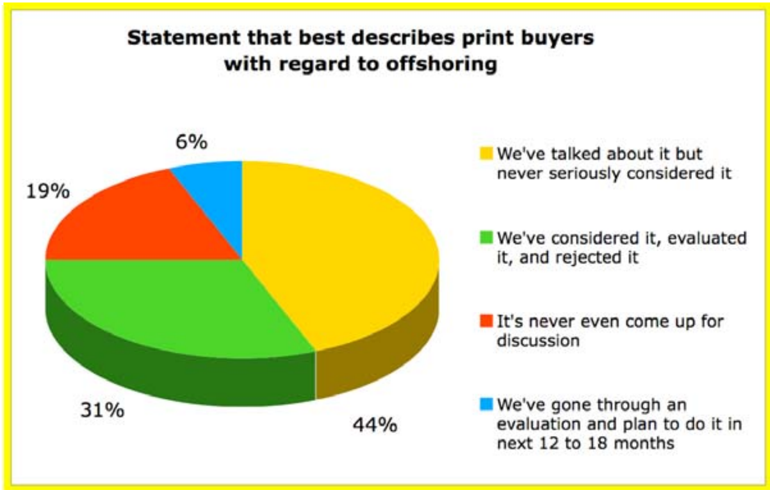

Figure 36. Statement that best describes print buyers with regard to offshoring.

From the data collected, it is apparent that only 6% of the U.S. print buyers said they would start buying print from Chinese printers by the end of 2006, and 94% will not.

The print buyers were asked to give the reasons that deterred them from buying from China. Six said they do not know how to do it, twelve said the turnaround time does not allow it, eight said the pricing is not attractive enough, eleven said it is too hard to control overseas print process, eight are concerned about the print quality, seven said it that they do not buy from Chinese printers because of political reasons, two said the reason was legal issues, four print buyers were concerned about confidentiality, and another five mentioned other reasons, such as: “publication schedules are too tight to allow for transit,” “because of relationship and trust issues,” “no onsite control,” “like to keep in

U.S., language barriers," "could get caught in customs," and "they are communist and are our enemies" (Figure 37).

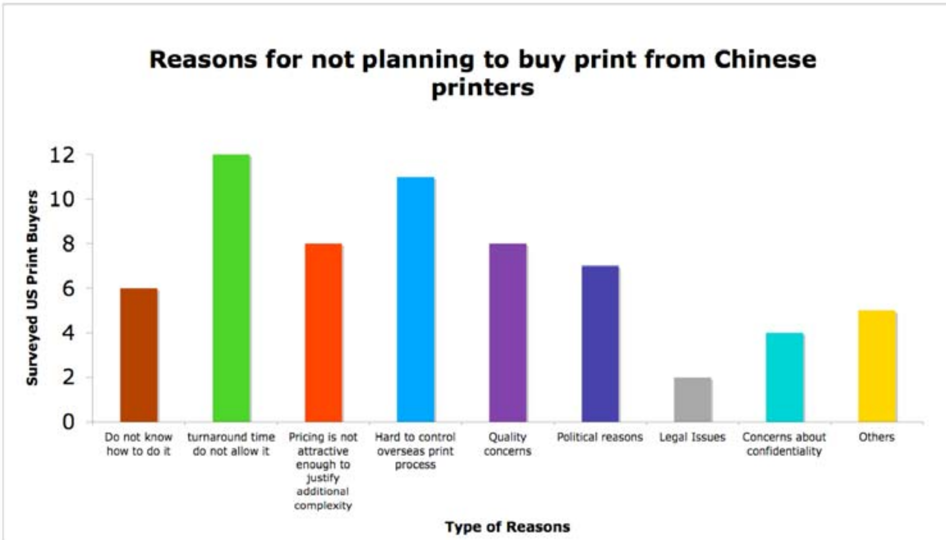

Figure 37. Reasons for not planning to buy print from Chinese printers.

Opinions from Surveyed U.S. Print Buyers Buying Print from Overseas

Beside these survey data, there are these additional opinions from different U.S. print buyers regarding why they are buying or not buying print from Chinese printers:

- *The upside to printing in Asia is the pricing and dedication of the factories. Another upside is the fact we are able to offer press proofs for the same price as digital proofs in the U.S. The downside is the shipping time. You will find that the greater the 'Value Added' in a project, the greater the costs saving when printing offshore.*

- *We have done some printing in the far east, mostly Singapore and Hong Kong. In these cases, we are in a co-publishing arrangement with a British publisher (the British Museum Press, for instance). They are the originating publisher and control the production and manufacturing logistics. We have printed in Europe when schedules allowed. Typically, it takes us 4 weeks to go from a bindery to our warehouse. From the Pacific Rim, it takes at least 7 weeks and often takes as long as ten weeks. We generally print conservative quantities. Quick reprints (given the transit time) would be a problem. Another concern is that proofing systems are not compatible with our domestic sources of supply. Lastly, among many university presses, there is a growing concern about environmental issues in China, and neither brokers nor the printers themselves have been fully open about such matters.*

- *Using offshore printers helps considerably to our bottom line on certain pieces of collateral. Because of tight turnaround times, we do not source all of our work to offshore firms. Plus, being a U.S. company, we feel obligated to support the U.S. in any way we can.*

- *We are a mail order company and mail our catalog and products in U.S. only. I have researched offshore printing and have heard good remarks from people who have. I have received print quotes from Canada and they have always been considerably lower than U.S. print quotes.*

- *I recommend it to any publisher who will be doing books with color interiors.*

- *It is almost impossible for domestic printers to meet Asiatic competition on books with lots of color.*

- *It is appropriate for some jobs, particularly those using color printing. It is unlikely to be cost effective with black ink projects. I prefer to use overseas printers with representatives (including exclusive brokers) in the U.S. I've used printers in Korea, China, Hong Kong (now, most have plants in China), and Singapore. I have not used any printers in India --- and will refrain from doing so until Indian printers have more experience in the U.S. market. I'm, frankly, surprised that printers in Mexico haven't used NAFTA to improve their market share --- although I would not be inclined to use a Mexican printer until I could be sure of good quality control. By your definition of 'overseas,' that includes Canadian printers. In my opinion, I use Canadian printers interchangeably with U.S. printers --- although until a recent job, I hadn't gotten any highly competitive bids from the Canadian printers I usually contact.*

- *We would much prefer to use a U.S. printer, but cost to our customers makes it necessary. On average, each of our customers has saved anywhere from $3,000 to $7,000 on their order. (We are a book packager working with small presses to manage the complete production of their product.) We only send 4/color projects to China. We always check with several North American (U.S. and Canada) printers and give our customers the option (turnaround time versus price) and most decide, after looking at the savings, to go with the Asian printer even though the turnaround time is much, much longer.*

- *The responsibility of providing the printed packaging for products made offshore tends to be that of the manufacturer, and not that of the U.S.- based parent company. It is a closed-loop system in which American packaging brokers are unable to participate.*

- *Offshore is generally complicated and very time-consuming. If domestic printers could close the price gap, that would keep all printing domestic.*

- *Doesn't hurt me, quick turnaround, and is not appropriate for offshore*

- *Trend increasing. Some of the people are moving to other countries. American printer fault for moving offshore. Cost of paper is influential.*

Opinions from Surveyed U.S. Print Buyers Who Are Not Buying Print from Overseas Printers

- *I am philosophically opposed to international outsourcing as it is a detriment to our current and future economic well-being. I am an MBA, so my reasons are tangible, as opposed to emotional. I am a micromanager at heart, so I do not send jobs anywhere that I cannot go to press-proof.*

- *I firmly believe offshore outsourcing is wrong, and we (the American business and workforce), will feel the negative impact of it in the very near future. By outsourcing to China, for instance, we are supporting a communist government that abuses its workers...20 years ago, people who did so would be branded un-American. By outsourcing to South America, we are helping support economies that support Middle Eastern terrorist organizations. The only reason American companies outsource is to save a buck.... save a buck today.... lose a country tomorrow. This is a very short-sighted view of world and future economics.*

- *Not great for the printing industry.*

Analysis and Findings

Offshore printing is one of the most controversial issues in the U.S. printing industry today; however, there have been no data focusing on U.S. and China offshore printing. In order to understand the factors, impacts, and trends between U.S. and China, this research developed two sets of surveys: one survey for the Chinese printers and the other one for the U.S. print buyers. The survey setting is trying to pull out data from both sides, generating an interactive survey function. To understand both the printers' and print buyers' point of view, from the data and comments collected, the most important factor that supports offshore printing is cost saving. However, from the comments collected, a print buyer does mention that because the product is imported from China, and it is in a closed-loop system, then U.S. printers cannot be involved in it. Below are the findings for the research questions:

1. *How do Chinese printers view the U.S. offshore print buying trends in the future?*

If the sample population is assumed to be an adequate demographic for the Chinese printers, it can be concluded that Chinese printers believe that there will be an increase in the market for offshore printing from the U.S. Between the years 2004 and 2005, the Chinese printers who had performed print projects for U.S. customers had an increase in the revenue from offshore projects that come from the U.S. The average increase was 21.3% from U.S.$6.1 million in 2004 to U.S.D$6.6 million in 2005. Seventy-two percent of the Chinese printers expect that their level of exports to U.S. would increase in the next 2 years.

2. *How are Chinese printers planning to upgrade and to improve their capabilities to acquire and to handle the offshore print jobs?*

Chinese printers are preparing for an increase in offshore printing. Chinese printers invested an average U.S.$4 million dollars in year 2004. The investment is mostly on equipments, presses, and Management Information

Systems (MIS). They are building new plants, preparing customer's services training, language training, and pre-media training. Chinese printers invest in both equipment and in improving their administrative employees to provide appropriate training for them which can help increase sales and increase production accuracy, time and cost saving.

There are 63% of the Chinese printers who are not currently working for U.S. customers. 64% of those Chinese printers who do not work for U.S. customers invested in their company during 2004 (Figure 38), and the average invested amount is RMB 12,243,000 (U.S.$1.5 million). For those Chinese printers who are currently working for U.S. customers, 76% invested in their company during 2004. The average invested amount per company is RMB 48,039,200 (U.S. $6 million) (Figure 39).

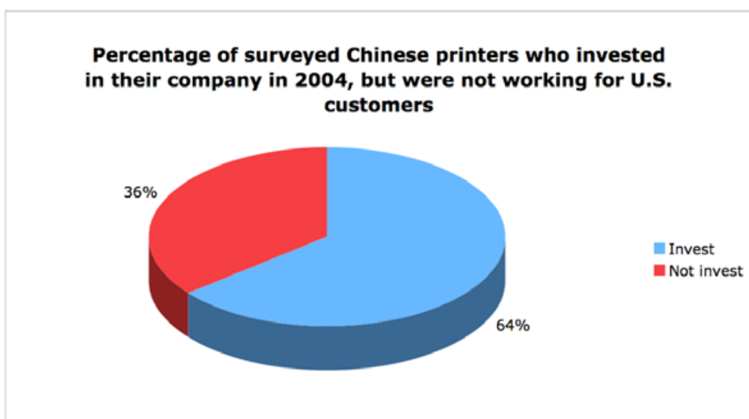

Figure 38. Percentage of surveyed Chinese printers who invested in their company in 2004, but were not working for U.S. customers.

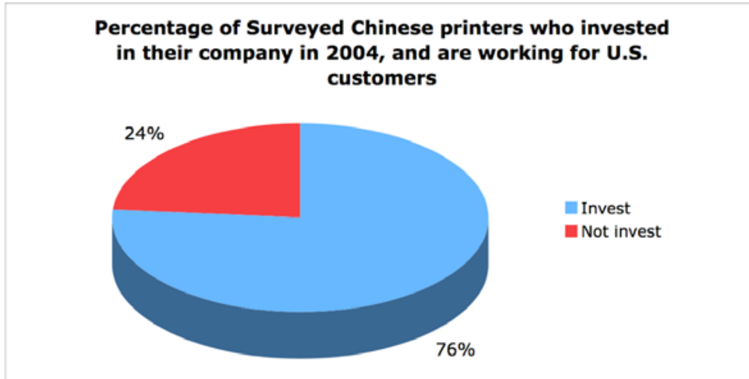

Figure 39. Percentage of Surveyed Chinese printers who invested in their company in 2004, and are working for U.S. customers.

Within those 37% of Chinese printers who are not currently working for U.S. customers, 25% of the Chinese printers are actively seeking U.S. customers (Figure 40). It concluded that the Chinese printers are upgrading and improving their facilities and training their employees in order to increase their ability to handle both offshore clients and print projects.

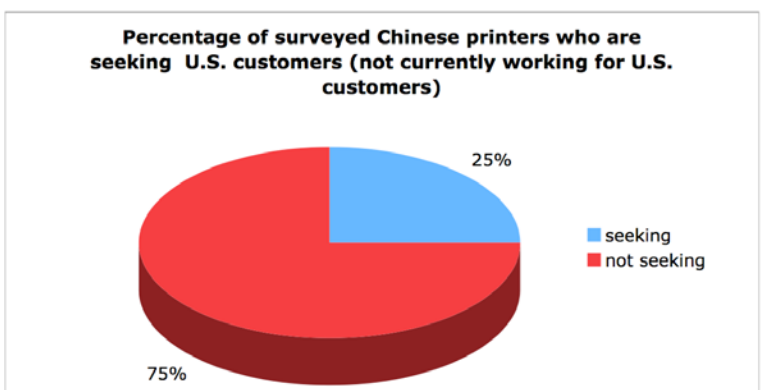

Figure 40. Percentage of surveyed Chinese printers who are seeking U.S. customers (not currently working for U.S. customers).

3. Is there a trend (an increase or a decrease) in offshore print buying from China?

According to the data obtained from the U.S. print buyers' survey, the data shows that there is a decrease in the print amount bought from U.S. print buyers from Chinese printers from 2004 to 2005. There is a decrease of 1.67% or $20,000. Among those U.S. print buyers who are currently buying print from Chinese printers, 35% of them said that they will increase buying print from Chinese printers, 36% said they will remain at a constant buying level, and 29% said that they will decrease their buying level (Figure 41).

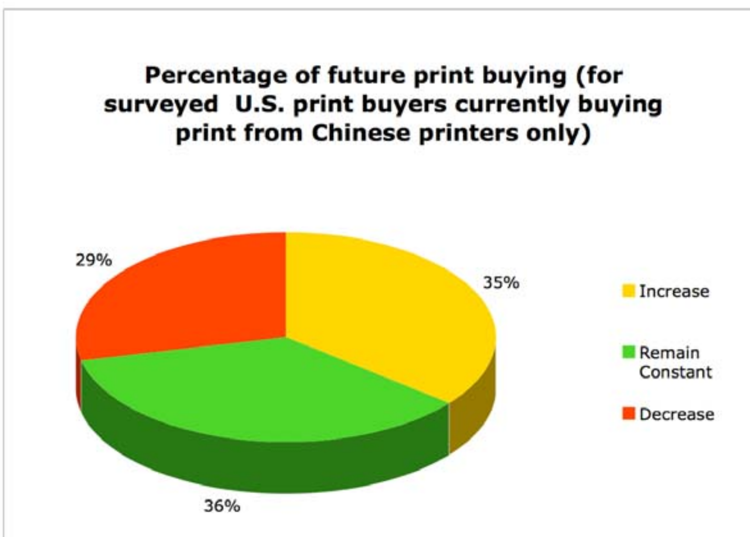

Figure 41. Percentage of future print buying (for surveyed U.S. print buyers currently buying print from Chinese printers only).

By looking at the data collected from U.S. print buyers, it seems that there is a decreasing trend in buying print from Chinese printers. This may be due to issues such as turnaround time, quality, pricing attractiveness, political reasons, legal issues, and confidentiality.

However, if we look at the data from the Chinese printers, it shows that 72% of the Chinese printers expect that the level of print exports to the U.S. will increase, while 28% said the export level would remain constant. None of the Chinese printers expect that the export level would decrease. There is a difference between the future expectations of the U.S. print buyers and the Chinese printers. At this point, we cannot conclude if there is an increasing or decreasing trend in offshore print buying from China, since the Chinese printers and print buyer expectations do not match.

4. *How do U.S. print buyers evaluate the need to send print jobs to China?*

U.S. print buyers evaluate their need to send print jobs to Chinese printers based on turnaround time, pricing attractiveness, print quality, print quantity, political issues, legal issues, and confidentially issues. The most important factor within these factors is the turnaround time and the pricing attractiveness.

5. *What are the obstacles that prevent U.S. print buyers from buying print from China?*

The most important obstacle is the turnaround time, which would not allow for jobs which need to be finished and delivered in a short, given time. Since shipping from China to U.S. typically required 6-10 weeks by surface mail and 2 weeks by airmail, print projects (such as publications that have a tight schedule) are impossible to print offshore.

Political reasons are other important obstacles that prevent U.S. print buyers buying print from China. From the data collected, it is apparent that some of the print buyers disagree with buying print from Chinese printers because they think that they should support their own country, instead of keeping their eyes on profit only. U.S. print buyers also see the language barrier, relationship issues, and trust issues as their obstacles to buying print from Chinese printers.

Chapter 5
Summary and Conclusions

Summary

Offshore printing is not new. During the last couple of years, there has been a significant increase in the use of and discussion about offshore printing.

Offshore printing offers significant savings on the cost of a typical print communication project, but this savings contains an increase in the freight and transport costs. Offshore printing has a certain impact on project planning and delivery timeframe; therefore, customers need to be accurate on their time schedule.

Technological advances improve the offshore printing company's competitive rate. Although technological barriers are being eliminated, there are other factors (such as language barriers, political issues, and currency exchange) that still need to be taken into account. The customers need to be prepared in order to have a successful offshore printing experience.

Since China entered the WTO in the year 2001, the Chinese printing industry has been growing by double digits annually. Because offshore printing offers buyers and brokers a huge cost saving, U.S. printers believe that the U.S printing industry and they, themselves, are at risk. As stated before, four out of ten printing clients are seeking overseas printing, and one out of three printers said they have lost at least one job to a Chinese printer (JAGAT, 2004).

Despite all we know about the Chinese printing industry, there is still considerable debate about what the implications may be for the U.S. Printing Industry.

From this primary research, two surveys were sent out, and the researcher collected data from both Chinese printers and U.S. print buyers. This research discusses how Chinese printers view the U.S. offshoring trend and their plans to handle their predictions and speculations. Due to the limitation, and it is highly political related topic, we can ignore the factor that surveyors may give out bias answer to the survey. If we assume that the survey collected are truly honest from the surveyors, and are demographically & sample population correct, we can concluded this research will be trustworthy, and through the surveys, it will be possible to understand the barriers that the U.S. print buyer experiences when sending a print job to China. This survey focuses also on the needs of the U.S. print buyers who plan to buy prints from China, and their reasons for not choosing to print locally. From those print buyers that do not buy print from China, it is of interest to understand their concerns and grounds for not buying from China.

From the data collected, in 2005, Chinese printers have a mean sale of U.S.$27.8 million and an average of U.S.$6 million in sales for those Chinese printers who perform offshore projects for U.S. customers. About 1/3 of the

Chinese printers surveyed are currently providing U.S. customers with offshore printing services, and over half of them state that the revenue that came from U.S. customers is around 10% of their total sales.

Half of the final print products purchased from the U.S. customers were sent out to a different country, instead of to the U.S. This high percentage is due mainly to shipping products to other countries; whether the products are printed in China or in the U.S., the turnaround time is about the same. These final printed products comprise an average 4.08% of the revenue for the Chinese printers. Seventy-two percent of the Chinese printers project that their offshore print sales to U.S. customers will increase in the next 2 years.

Chinese printers said that most of the time, the print projects which are purchased by U.S. customers require moderate to high print quality, moderate run length, long turnaround time, moderate labor, and need lots of color, coating, and finishing.

Half of the surveyed Chinese printers are actively seeking U.S. customers, and most of them find their U.S. customers via attending trade shows, by setting up sales office in the U.S., and through joining industry associations.

Chinese printers keep investing in themselves, in order to prepare for the future offshoring trends. There is an average of U.S.$4 million invested in the year 2004, mostly on equipment, presses, and Management Information Systems (MIS).

The relationship between U.S. investors and Chinese printers are not correlated to the customers whom they are providing services. However, Chinese printers who work for U.S. customers are mostly invested in by Chinese investors.

There is an average of $35.8 million in prints bought from U.S. print buyers in 2005. About 1/3 of the U.S. print buyers said that the print amount they bought in 2005 is higher than it was in 2004. The surveyed buyers mostly bought color books, black and white books, direct mail, labels, and catalogs. Two out of five surveyed U.S. print buyers said they are currently purchasing prints form overseas markets. One-third of the print buyers have bought prints from Chinese printers. Almost half of the U.S. print buyers located the Chinese printers through referral.

According to the U.S. print buyers who are currently buying prints from Chinese printers, they have been in business for an average of 8.5 years. Half of the U.S. print buyers indicated that they only have 0-5 years of print buying experience; however, some the U.S. print buyers have over 20 years of experience.

Half of the surveyed U.S. print buyers said they save 20% to 50% of the total cost from buying print from Chinese printers, while some said they could save up to 80%. However, the print buyers do not see an increasing trend over buying print from Chinese printers; from the data collected, there was a 1.37% decrease on print buying from Chinese printers between 2004 and 2005.

According to the survey respondents, U.S. printers are slightly more accurate on print production and delivery time than are Chinese printers, and the print purchased from Chinese companies have the same quality as those from U.S. printers.

There are several reasons that U.S. print buyers do not buy print from Chinese printers. Four out of ten said that they have talked about it, but never seriously considered it as an option, mostly because the turnaround time does not allow for it and the pricing is not attractive enough. There are other reasons that discourage U.S print buyers from buying prints in China, such as language barrier, no on-site control, and trust issues.

Conclusions

Offshore printing is one of the most controversial issues within today's U.S. printing industry. From the data collected from both surveys, we can generate several conclusions. Assuming that the sample population is in an adequate demographic, we can conclude that Chinese printers view that U.S. offshore print buying trends will increase in the future. The Chinese printers expect that the level of exports to the United States will continue to increase in the next two years.

Chinese printers are preparing for greater offshoring. They have invested mostly in equipment, presses, and Management Information Systems (MIS,) and are providing training for their employees in order to increase their ability to handle both offshore clients and print projects.

Most of the Chinese printers are actively seeking U.S. customers. However, from the data collected, U.S. print buyers show that there is a decrease in the prints bought from U.S. print buyers from Chinese printers from 2004 to 2005. From the U.S. print buyer's data interpretation, there is a contradiction with the future sales expectation from the Chinese printers. It is possible that there are some print buyers who have considered it inappropriate to buy from China, whereas it would be hard to convince them otherwise. This, however, cannot be considered as proof to conclude that the print-buying amount will decrease. The reasons that the U.S. print buyers gave for decreasing their print buying amount from Chinese printers are issues of turnaround time, quality, unattractive pricing, political reasons, legal reasons, and confidentiality.

Above all, U.S. print buyers evaluate their need to send print jobs to Chinese printers based on the turnaround time and the pricing attractiveness. The U.S. print buyers see turnaround time as one of the obstacles that prevent them from purchasing print from China. Of course, there are other reasons that make the U.S. print buyers refuse to buy print from overseas, such as the language barrier, and issues of relationship and trust.

Recommendations for Further Investigation

From the collected surveys, there are some areas that are worthy of further study. First, another offshore printing study can be conducted on the Indian offshore printing market. India is considered as the next up-and-coming offshore printing market, because of its well-educated and English-speaking workforce.

Second, some of those surveyed U.S. print buyers and Chinese printers could be followed up upon as a case study; therefore, we can study the pros and cons of offshore printing, and learn more about the offshoring process. This will help people to understand why print buyers need to go through the necessary steps in order to save those costs.

The U.S. printers need to close the price gap between the overseas printers. Currently, shipping and freight costs counterbalance the total costs of print, but these costs might fluctuate in the future. Further studies on making U.S. printers competitive with the overseas printers will be required if these fluctuations make it unproductive to buy local print.

Bibliography

Bibliography

All in print. (2004). China international exhibition for all printing technology and equipment. Chinese Printing Machinery and Materials Industries. Retrieved January, 5, 2005 from: http://www.aipchina.com/market/marketnews-3-1.htm

Bland, J. (2004, March 9). *Book market overview published.* Retrieved June 8, 2005 from www.gain.net/PIA_GATF/newsroom/archives/p0304a.html

Buss, D. D. (2005.). *Growing more by doing less: Outsourcing*. Retrieved March 25, 2005 from http://www.outsourcebackchina.com/outsource-printing.html

Bhattasali, D., Li, S., & Martin, W. (2004) *China and the WTO*. Washington D. C.: The World Bank.

Cagle, E. (2003, May). Giant transformation*.* *Printing Impressions*. 45 (12), 18

Cataloq. (2004). *Offshore printing*. Retrieved March 22, 2005 from http://www.cataloq.com/Overseas/

China Knowledge Press. (2005, April 8). *China Newspaper Industry*. Retrieved February 6, 2006 from http://www.marketresearch.com/product/display.asp?partnerid=926025554&productid=1092596

Christensen, J. (1996.). *Offshore printing*. Retrieved March 25, 2005 from http://www.bookbuilders.org/news/9605/offshore.htm

CMP Information Ltd. (2004, April 22). Print unlikely to be sent abroad, says report*.* *Printing World*. 24

Crossblue. (2004.). *Why overseas printing*? Retrieved March 22, 2005 from http://www.crossblue.com/WhyOverseas.asp

Dick, G. (2005, March). Tips for better color management. *Booktech, the Magazine*, 8 (2) 48-49.

Frauenheim, E. (2005, January 11). *The latest offshore frontier: printing*. Retrieved March 25, 2005 from http://news.com.com/2061-1022-5532354.htm

Hawley, K. (2002, Spring). Printing overseas. *CBC Quarterly Chronicle*. 8-15.

Hickey, T. (2005, January 31). Outsourcing decisions: they're strategic. *Computerworld*, 39 (5), 40.

Hira, R. & Hira, A. (2005). *Outsourcing America: What's behind our national crisis and how we can reclaim American jobs*. New York: AMACOM.

Hitchcock, N. A. (2005). How China's growth is affecting North American printers*.* *Electronic Publishing.* 29 (1), 16-19.

Japan Association of Graphic Arts Technology (JAGAT). (2004). The current status and perspective of China's printing industry. *ASIA FORUM 7th FAGAT/Malaysia 2004 Information Exchange Meeting.* Retrieved February 5, 2005, from: http://www.jagat.or.jp/story_memo_view.asp?StoryID=8087

Mcgregor, R. (2004, May 5). World's workshop seeks to step up a league China's struggle: but the country still trails on technology. *The Financial Times*. 6.

Mallardi, V. (2004, September 1). *Foreign printing – competitors across continents*. Retrieved March 25, 2005 from http://www.piworld.com/pi_premium/282948667378949.bsp

Maranjian, S. (2004, March 11). *Thoughts on offshoring and outsourcing*. Retrieved June 25, 2005 from http://www.fool.com/news/commentary/2004/commentary040311SM.htm

Market Access and Compliance (MAC) (2001). *China*. Retrieved June 25, 2005 from http://www.mac.doc.gov/tcc/data/commerce_html/countries/nte2001/china.htm

McKelvey, C. (2003, October 31). Leader: Hidden costs of cheap production*.* *Precision Marketing.* 15.

McKinsey & Company. (2003, October 26) Who wins in offshoring? Retrieved July 25, 2005 from http://news.com.com/2030-1014-5096283.html

Michelson, M. (2005, March 1). Offshore printing: New reality of globalization*.* *Printing Impressions.* 47 (10), 24.

Naselli, V. (2005, March 1). *Offshore printing – Sea change in print buying*. Retrieved March 25, 2005 from http://www.piworld.com/pi_premium/283434775431192.bsp

Nason, C. (2005, January). Offshore printing devastated us*. Graphic Arts Monthly.* 77 (1), 20.

O'Brien, K. (2005, March 1). *The offshore & overcapacity double whammy*. Retrieved June 25, 2005 from http://www.findarticles.com/p/articles/mi_m3254/is_3_122/ai_n13251874

Print Management. (2004). *Offshore printing*. Retrieved March 25, 2005 from http://www.knownet.addr.com/printmana/printmana.html

Propensys. (2003). *The business case for offshore printing*. Retrieved March 25, 2005 from http://www.propensys.com

PRWeb. (2004, June). *Calendar printing without the traditional hurdles – On the Mark unveils one of the most compelling calendar printing services available by combining the economic benefits of offshore printing with a new zero-risk proof system*. Retrieved March 23, 2005 from http://www.prweb.com/releases/2004/6/prwebxml130347.php

Sheinet, Shanghai Int'l Print. (1998). *The Second China Flexo & Gravure Technology & Equipment Exhibition June 2-5, 1998*. Shanghai International Exhibition Center, Shanghai, China. Shanghai Sheinet Co. Ltd. Retrieved January 5, 2005 from www.sh.cei.gov.cn/qycp/q0027113.htm

Strategies for Management, Inc. (SFMINC). (2005). A critical look at offshore printing.

Skodzinski, N. (2004, September). Offshoring and the global marketplace. *Booktech Magazine*, 16-24.

Taillon, G. (2004, November). Out of options: Is outsourcing the answer? *Practical Accountant*, Vol 4, 2.

Tan, T. (2003, May 19). *Manufacturing Offshore*. Retrieved May 19, 2003 from http://publishersweekly.reviewsnews.com/index.asp?layout=article&articleid=CA299593

The Associated Press. (1993, August 5). Food stamp printer contract under fire; Bidding open to foreign countries; [third edition]. *Times-Picayune (pre-1997 fulltext).* New Orleans, LA. p. A.8.

WhatTheyThink. (2004, September 13). *New study examines how U.S. printing industry can deal with offshore competition*. Retrieved March 25, 2005 from http://members.whattheythink.com/allsearch/article.cfm?id=17464

Webb, J. (2004, September 8). *A critical look at "offshore" printing*. Retrieved March 25, 2005 from http://www.prweb.com/prfiles/2004/09/08/156536/Offshore_Printing_Presentation_www-sfminc-com.pdf

Webb, J. (2005, January 11). *Offshore printing gaining ground; Newly published study analyzes the U.S. printing industry's growing competition from print imports*. Retrieved March 25, 2005 from http://www.prweb.com/releases/2005/1/prwebxml195117.php

Weinstein, M. (2005, January). Vacation catalogers travel overseas for printing. *Catalog Age*, 22 (1), 22-23.

Whitcher, J. (2004, December). Key numbers are up, but print's performance is still a far cry from the pre-2001 levels. [Electronic version]. *Graphic Arts Monthly.*

Yorgey, L. A. (1994, December). Printing around the globe. *Target Marketing*, 17, (12) 30-31.

Yang, F. (2001, Spring). *Analysis and strategic study of advantages / disadvantages of China's entry into the WTO in various industries*. Retrieved February 6, 2006 from www.uscc.gov/researchpapers/2000_2003/pdfs/analys.pdf

Appendix A

United States Print Buyers' Survey

Appendix A

United States Print Buyers' Survey

1. Company Name: _________________

2. Location: ___________________

3. How much print did you buy in 2004: $_________________

4. How much print do you anticipate buying in 2005: $_______________

5. What type of products do you buy? (Check those that apply)
    a. Advertising
    b. Color Books
    c. Black and White Books
    d. Catalogs
    e. Direct Mail
    f. Directories
    g. Forms
    h. Government Information
    i. Architectural materials
    j. Transaction Statements
    k. Newspapers
    l. Packaging
    m. Periodicals
    n. Labels
    o. Technical Documents
    p. Legal Documents
    q. Quick Printing
    r. Other, please specify _________________

6. What type of services have you purchased from a print supplier? (Check those that apply)
    a. Information Management

b. Supply Chain Management
c. Digital Asset Management
d. Web Development and Hosting
e. CD-ROM production Services
f. Pre-Media
g. Digital Photography
h. Online Template Services
i. Digital proofing
j. Prepress and Design
k. Printing
l. Traditional Ink Based printing
m. Toner-Based Digital printing
n. Finishing
o. Laminating and Mounting
p. Finishing and Assembly
q. Mailing and fulfillment
r. Other, please specify ________________

7. Do you buy printing services offshore? *(Offshore means using a supplier outside the United States for your outsourcing)*
   a. Yes (If **YES**, for how long have this been done? __________ Years)
   b. No (IF NO, skip to question 17)

8. Do you buy print from China?
   a. Yes
   b. No (IF NO, skip to question 18)

9. What percentage of your total printing costs were from printing purchases bought from China ___________%

10. What percentage of your total printing costs in 2005 do you anticipate will be due to printing purchases from China? ___________%

11. For how long have you bought print from China? __________ Years

12. In general, what is your cost savings on a job purchased from China compared to pricing in U.S. suppliers? Price from China suppliers is in

general ______________% of the U.S. price (Include all expenses in this number).

13. How long does it take, on average, from the time a job is submitted to the time it is shipped? (Do not included shipping for final delivery of product)

    From U.S. printer: ____________ weeks
    From Chinese printer: ______________weeks

14. How does the quality of prints purchased in China compare to those purchased in the U.S.?
    a. Significantly higher quality
    b. Slightly higher quality
    c. Same quality
    d. Slightly lower quality
    e. Significantly lower quality

15. On average, what percentage of jobs ship on time?

    From U.S. suppliers ____________%
    From Chinese suppliers ________________%

16. Please indicate which of the following reasons may have influenced your decision not to use a Chinese print supplier:
    a. Turnaround times do not allow it
    b. Pricing is not attractive enough to justify additional complexity
    c. Quality concerns
    d. Political reasons (E.g. Books funded by American printer, so it should printed in U.S.)
    e. Legal Issues (E.g. Wisconsin State law - Wisconsin print buyers can can't buy prints from out of State.)
    f. Concerns about confidentiality
    g. Other, please specify ___________________

17. How did you locate the Chinese printer(s)? (Check those applied)
    a. Internet
    b. Catalog
    c. Publication
    d. Referral

e. Other, please specify ____________

If you are not currently buying from China, please answer the following question.

18. Which of the following statements best describes your firm with regard to offshoring? (Check ONE only)
    a. We've talked about it but never seriously considered it.
    b. We've considered it, evaluated it, and rejected it.
    c. It's never even come up for discussion.
    d. We've gone through an evaluation and plan to do it in next 12 to 18 months

19. Do you think you will be buying print from China by the end of 2006?
    a. Yes
    b. No

20. If you do not have plans to buy from China, please indicate which of the following reasons apply:
    a. Do not know how to do it
    b. Turnaround times do not allow it
    c. Pricing is not attractive enough to justify additional complexity
    d. Hard to control overseas print process
    e. Quality concerns
    f. Political reasons (E.g. Books funded by American printer, should printed in U.S.)
    g. Legal Issues (E.g. Wisconsin State law - Wisconsin print buyers can can't buy prints from out of state printers.)
    h. Concerns about confidentiality
    i. Other, please specify ___________________

If you are currently buying from China, please answer the following questions.

21. Do you have any other comments regarding the effect of offshore outsourcing on your firm or the printing industry?
    ____
    ____

22. Would you be willing to be contacted to talk more with our research team about your business?
    a. Yes (if yes please provide a name and phone number: ______________)
    b. No

Appendix B

Chinese Printers' Survey (English)

Appendix B

Chinese Printers' Survey (English)

1. Company Name: _________________

2. Location: ___________________

3. How long has your company been in business? _______________

4. Number of Employees: _________________

5. Annual sales in 2004: RMB_________________

6. Anticipated annual Sales in 2005: RMB_________________

7. What type of products does your company produce? (Check all that apply)
    a. Advertising
    b. Color Books
    c. Black and White Books
    d. Catalogs
    e. Direct Mail
    f. Directories
    g. Forms
    h. Government Information
    i. Architectural materials
    j. Transaction Statements
    k. Newspapers
    l. Packaging
    m. Periodicals
    n. Labels
    o. Technical Documents
    p. Legal Documents
    q. Quick Printing
    r. Other, please specify _________________

8. Besides printing, what other services does your company offer? (Check those that apply)
    a. Information Management
    b. Supply Chain Management
    c. Digital Asset Management
    d. Web Development and Hosting
    e. CD-ROM production Services
    f. Pre-Media
    g. Digital Photography
    h. Online Template Services
    i. Digital proofing
    j. Prepress and Design
    k. Printing
    l. Traditional Ink Based printing
    m. Toner-Based Digital printing
    n. Finishing
    o. Laminating and Mounting
    p. Finishing and Assembly
    q. Mailing and fulfillment
    r. Other, please specify ________________

9. Do you currently do work for customers that are located in United States (U.S. customers)?
    a. Yes
    b. No (if no, skip to question 19)

10. If **YES**, what percentage of your revenues in 2004 came from U.S. customers?
    ______________%

11. What percentage of revenues do you anticipate coming from U.S. customers in 2005? ______________%

12. What percentage of the print volume in your company is for U.S. customers: ________________%

13. In the last 12 months, has your company performed print jobs for U.S. customers, but shipped it to other countries?
    a. Yes
    b. No

14. In last 12 months, what percentage of the revenues that came from U.S. customer's print jobs was shipped to other countries? ___________%

15. What type of products and services has your firm provided to U.S. customers? (Check all that apply)

a. Advertising	s. Information Management
b. Color Books	t. Supply Chain Management
c. Black and White Books	u. Digital Asset Management
d. Catalogs	v. Web Development and Hosting
e. Direct Mail	w. CD-ROM production Services
f. Directories	x. Pre-Media
g. Forms	y. Digital Photography
h. Government Information	z. Online Template Services
i. Architectural materials	aa. Digital proofing
j. Transaction Statements	bb. Prepress and Design
k. Newspapers	cc. Printing
l. Packaging	dd. Traditional Ink Based printing
m. Periodicals	ee. Toner-Based Digital printing
n. Labels	ff. Finishing
o. Technical Documents	gg. Laminating and Mounting
p. Legal Documents	hh. Finishing and Assembly
q. Quick Printing	ii. Mailing and fulfillment
r. Other, please specify ___________________	jj. Other, please specify __________________

16. Over the next 2 years, do you believe your level of exports to the United States will (CHECK ONE ONLY)?
    a. Increase
    b. Decrease
    c. Stay the same

17. In general, which of the following job characteristics are common for your U.S. customers? (Please select one from each characteristic)

a. Print runs	i. short	ii. moderate	iii. long	iv. no similarity
b. Quality	i. low	ii. moderate	iii. high	iv. no similarity
c. Turnaround time	i. short	ii. moderate	iii. long	iv. no similarity
d. Labor intensive	i. low	ii. moderate	iii. high	iv. no similarity

e. Job specification
- i. Single color job
- ii. Jobs with lots of color and coating
- iii. Jobs with lots of finishing
- iv. No similarity

f. other, please specify ____________________

18. Besides printing, what other services have U.S. customers purchased from your company? (Please check those that apply)
    a. Information Management
    b. Digital Asset Management
    c. Web Development
    d. CD-Rom production Services
    e. Pre-Media
    f. Digital Photography
    g. Digital proofing
    h. Design
    i. Digital printing
    j. Finishing
    k. Mailing and fulfillment
    l. Other, please specify ________________

19. Are you actively seeking work from U.S. customers?
    a. Yes
    b. No (if no, skip to question 22)

20. If YES, what is the method you use (Check all that apply):
    a. Sales office in U.S.
    b. Internet Marketing
    c. Trade publications
    d. Through Print brokers
    e. Trade Shows
    f. Through Industry association
    g. Other, please specify _______________

21. In your view, what are the key *barriers* impeding your market growth in non-domestic markets? For example, cost, technology, awareness, logistics, specifications, etc.
    ____
    ____
    ____
    ____

22. How much have you invested in capital improvement (equipment, machinery, training, and infrastructure) since the start of 2004?
RMB___________________

23. Which areas of capital improvement you improved since 2004? (Please check those that apply)
    a. Presses
    b. Equipment (other than presses)
    c. Management information system
    d. Customer services training
    e. Pre-media training
    f. Language training
    g. Building new plant
    h. Other, please specify ______________

24. Who are the investor(s) in your company? Check all that apply.
    a. Chinese investor
    b. U.S. investor
    c. Other country investor, please specify _________________

25. Do you have any other comments regarding performing print jobs for U.S. customers on your firm?
____
____
____

26. Would you be willing to be contacted to talk more with our research team about your business?
    a. Yes (if yes please provide a name and phone number: ________________________)
    b. No

Appendix C

Chinese Printers' Survey (Chinese)

Appendix C

Chinese Printers' Survey (Chinese)

中国印刷业问卷调查

1. 公司名字：________________________

2. 地　址：________________________

3. 公司已经开业多少年？________年

4. 员工人数：______________人

5. 2004年全年销售额（RMB）____________________

6. 2005年预计全年销售额（RMB）_______________

7. 贵公司生产产品种类 (请依据下列列表选择公司生产的全部产品)

a. 广告
b. 彩色书本
c. 黑白书本
d. 目录册
e. 直接邮寄广告
f. 号码薄
g. 表格
h. 政府檔
i. 建筑材料
j. 业务清单
k. 报纸
l. 包装
m. 期刊
n. 商标
o. 技术档
p. 法律檔
q. 快印
r. 其它,请说明
____
____
____

8. 除了印刷之外，贵公司是否提供其它服务？（请依据下列列表选择公司所提供的其它全部服务项目）

a. 信息管理
b. 生产线管理
c. 电子党案管理
d. 网页制作和寄存
e. 光盘制作服务
f. 印前服务
g. 数码摄影
h. 网上预设版面（网上样板服务）
i. 数码样张
j. 印前和设计
k. 印刷
l. 传统油墨印刷
m. 色粉数码印刷
n. 精加工
o. 过胶和装帧
p. 精加工和组装
q. 邮递和运输
r. 其 它 ， 请 说 明
____
____
____

9. 贵公司目前是否在为美国当地的客户服务?
a. 有
b. 没有（请直接转到问题19）

10. 如果**有**，请问2004年全年收入中有多少百分点来自于美国当地客户？
__________________%

11. 请 问 预 计 2005 年 全 年 收 入 中 有 多 少 百 分 点 来 自 于 美 国 当 地 客 户？
____________________%

12. 贵公司有多少百分点的印刷量来自于美国客户? __________________%

13. 在过于的12个月里，贵公司是否曾为美国客户提供印刷服务，但最终产品运到其它国家（非美国)?
    a. 是
    b. 否

14. 在过去12个月里，请问贵公司有多少个百分点的收入是来自美国当地客户,但最终产品是运到其它国家(非美国)? _______________%

15. 请依据下列列表选择贵公司所提供给美国当地客户的产品及服务：

    a. 广告
    b. 彩色书本
    c. 黑白书本
    d. 目录册
    e. 直接邮寄广告
    f. 号码薄
    g. 表格
    h. 政府檔
    i. 建筑材料
    j. 业务清单
    k. 报纸
    l. 包装
    m. 期刊
    n. 商标
    o. 技术档
    p. 法律檔
    q. 快印
    r. 其它,请说明 __________________ __________________ __________________
    s. 信息管理
    t. 生产线管理
    u. 电子党案管理
    v. 网页制作和寄存
    w. 光盘制作服务
    x. 印前服务
    y. 数码摄影
    z. 网上预设版面（网上样板服务）
    aa. 数码样张
    bb. 印前和设计
    cc. 印刷
    dd. 传统油墨印刷
    ee. 色粉数码印刷
    ff. 精加工
    gg. 过胶和装帧
    hh. 精加工和组装

ii. 邮递和运输 ________________
jj. 其 它 , 请 说 明 ________________

16. 请预计未来的 2 年,贵公司会出口美国:

a. 增加
b. 减少
c. 保持不变

17. 一般来说,请问你的美国客户有没有共通特征? (请在每项选择一个答案)

a. 印刷量	i.少	ii.中等	iii.多	iv.没有共通特征
b. 印刷质素需求	i.低	ii.中等	iii.高	iv.没有共通特征
c. 印刷周转时间	i.慢	ii.中等	iii.快	iv.没有共通特征
d. 劳动力/人手加工	i.少	ii.中等	iii.多	iv. 没 有 共 通 特 征

e. 生产特征
  i. 单色印刷品
  ii. 4 色印刷品及光漆印刷
  iii. 大量人手加工
  iv. 没有共通特征

f. 其它,请说明 ______________________________

18. 除印刷服务外,请依据下列列表选择所有贵公司曾为美国客户服务过的项目?

a. 信息管理
b. 生产线管理
c. 电子党案管理
d. 网页制作和寄存
e. 光盘制作服务
f. 印前服务
g. 数码摄影
h. 网上预设版面(网上样板服务)
i. 数码样张
j. 印前和设计
k. 印刷
l. 传统油墨印刷
m. 色粉数码印刷
n. 精加工
o. 过胶和装帧
p. 精加工和组装
q. 邮递和运输
r. 其 它 , 请 说 明 __________________ ______________________ ____________

19. 请问贵公司有没有积极地寻找美国客户?

a. 有
b. 没有 （请直接转到问题 22）

20. 如贵公司有积极地寻找美国客户,请问贵公司是用什么方法去寻找? （请依据下列列表选择贵公司所有曾/正在使用的方法）

a. 经美国分公司销售部门
b. 网上销售
c. 在国际印刷杂志内刋登广告
d. 经印刷经纪人
e. 经国际性印刷展
f. 经印刷业工会
g. 期他,请说明__________________________

21. 请问贵公司觉得有什么困难妨碍发展海外市场? （如：价格,印刷科技,警觉性,后勤人员不足,规格不同,及其它）

____
____
____
____
______

22. 自2004年开始贵公司投资多少资金用于公司增建项目? （设备、机械、培训和基础设施）？RMB________________。

23. 自2004年来贵公司在那些方面提高了资金的投入? （请依据下列列表选择相适宜的项目）

a. 印刷机
b. 设备（不包括印刷机）
c. 信息管理系统
d. 客户服务培训
e. 印前服务培训
f. 语言培训
g. 建立新工厂
h. 其它,请说明_________________________

24.请问谁投资贵公司?

a. 中国投资者
b. 美国投资者
c. 其它国家投资者,请说明____________________________

25.请问贵公司对美国客户印刷商品有没有其它意见?

____
____
____
____
______

26.你是否愿意和我们探讨更多的关于贵公司的业绩?

a. 是（如果是，请留下您的姓名和电话号码）

b. 否